

768
THE
ADVANTAGES
OF

Inland Navigation;

OR,
SOME OBSERVATIONS
OFFERED TO THE PUBLIC,
TO SHEW

That an Inland Navigation may be easily effected

Between the three great Ports of

BRISTOL, LIVERPOOL, and HULL;

Together with a PLAN for executing the same.

By R. WHITWORTH, Esq;

Richard
Humbly submitted to the Great Assembly of this Nation.

*Navibus atque
Quadrigris petimus bene vivere, quod petis, hic est.*

L O N D O N:

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To the Right Honourable

E A R L G O W E R,

To the Right Honourable

L O R D S T R A N G E,

And to the Right Honourable

WILLIAM PYNSENT PITT, Esq;

I Humbly beg leave to dedicate this small treatise to the above three eminent persons, whose great abilities and parts will at all times distinguish them so, as to give them a title to judge, and form an opinion, for the generality of mankind; and if
it

it should meet with their approbation, that I have therein pointed out a public good, it will be the highest satisfaction to one who has the love of his country at heart, and who will, at all times, remain devoted to the service of it, in the name and person of

Batchacre Grange,
Feb. 20, 1766.

RICH. WHITWORTH.

THE
ADVANTAGES
OF
Inland Navigation, &c.

IT is with the greatest pleasure I sit down to put pen to paper, in order to perform some part of that duty that every man owes to the public; and to think that I am launching out into the discussion of a subject, that is not only of private concern, but of national advantage; it is that which ought to be the principal and leading system of all science; I mean, an easy communication and conveyance from one to another, as well of persons as goods and merchandize; it is the very existence of society that creates trade and commerce, and the easier the communication, the greater the increase. When I consider the vast importance of this subject, perhaps to be laid before the council of the nation for their consideration, and to be canvassed by all the public, I would chuse that my trembling pen should not drop this feeble hint but with a proper degree of thought and serious consideration, though time will little allow me to be so explicit as I could wish, and to

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discuss

discuss this subject to its nicest point, (that of the benefit of trade to this nation) yet I must venture upon a raft sooner than not float at all, as I believe there scarcely lives a man who will not own, that it is to trade we owe the continuance of our freedom, and that it is the commerce, and not the military force of our kingdom can enrich us, and alone protect us in our independency. Trade from one port to another in this kingdom will be the only means of increasing our commerce with other nations; it is therefore trade which can alone bring riches to this country, and the persons, in whose hands that trade is, are the true and real warriors of this realm; it is they that hold the pen of liberty, cherish valour in the soldier, and thunder out a conquest from the fleet. The advantages of inland navigation are so very numerous, and so obvious to the meanest capacity, that to mention them here, would both tire the reader's patience, and, perhaps, draw him from his attention to the intended scheme here proposed, into a labyrinth of perplexity; though I cannot help trespassing on his time in some degree, as I shall not deviate from the subject here proposed, or bring other things to day-light, that do not immediately concern the present intention.

It is an undoubted certainty, that all passage and communication bring trade into a country, and into those parts where not the least idea of traffick, among the inhabitants, ever went further, or was brought to a higher pitch, than a coat to cover them, and bread to satisfy their hunger; these are the people who will soon feel the great advantage from inland navigation, who have hitherto been bred up for no other use than to feed themselves, and I may number them as some millions that have been thus buried alive, as it were,
from

from the public service : what advantage will not accrue to this nation, when so many millions will be allured out into the world of men, robust by nature, and become useful to the state, by the temptation of gain ! Hitherto the world has been unequally dealt, and though all the inhabitants of this island should have an equal right to the gifts of nature in the advantages of commerce, yet it has only happened to those who live upon the coasts to enrich themselves by it, whilst as many millions lie starving for want of opportunity to forward themselves into the world : though the city, village, or country, in which they live, is at the lowest ebb of poverty, it will, in a short time, by trade passing only through it, alter its very nature, and the inhabitants become from nothing as it were a very rich and substantial people ; their very natural idea of mankind, and their rude and unpolished behaviour will be altered and soothed into the most social civility and good breeding by the alluring temptations of the beneficial advantage of trade and commerce : it is a well-known maxim, and one which most nations endeavour to put in practice, and all do allow of, that the riches of any country consist in the number of people, and their communication the one with the other. What has made the island of Great Britain so powerful ? what has enabled the kingdom to support the prodigious expence of this last and most glorious war ? what but the trade alone ? Let us but compare these days with those when the Phenicians used to trade upon one part of this coast for a little tin, and put into the opposite scale the vast and enormous sum of one hundred and fifty millions, which our merchants have been enabled to lend for the support of the government this and the preceding wars, we shall find it all owing to trade and commerce ; carri-

ed on by numbers of people associating and trafficking with each other. What was the cause, why this nation, in those times I speak of, was not so rich and powerful as at this present? The reason readily occurs; their obscurity, and being scarcely known to any other part of the world. Therefore the great advantage that must necessarily arise to every individual by such communication and commerce, and the having a conveniency of exchange and carriage for their merchandize, may be drawn from the foregoing remarks. But was I here to enlarge upon the great and beneficial advantages which communication, conveniency of passage and commerce, bring to every place and every person in it, I should soon fill a large volume with evidences of its utility; and in doing that should so far exceed my purpose in this small treatise, as to fatigue my reader, by leading him through a tedious detail, first into hot climate, and then into cold, so from one to the other, till I had weakened his eyes, and worn out his patience; that I should stand a chance to be condemned before the substance of the cause, or the merits of trial came on: so instead of jumping from one country to another, and so on, I will gently step into my own, and endeavour to discuss, with the small reason I am master of, the great advantages that a navigable canal will be of to the three great ports of Bristol, Liverpool, and Hull, as also to the nation in general, and likewise to these particular counties, Staffordshire, Shropshire, Lancashire, Cheshire and Derbyshire, through which the intended navigable canal must pass, in order for the junction of the three great ports above mentioned. As the rivers of most countries are so subject to floods at one part of the year, and at the other so shallow for want of water in a dry summer, both which, as well as the immense

menſe locks, impede and hinder the navigation, and are now found to be the moſt uncertain and difficult, as well as expenſive method of conveyance of merchandize; and, as that ſort of navigation is almoſt univerſally agreed upon to be laid aſide, I cannot here enough commend that noble ſpirit of good ſenſe in which his grace the duke of Bridgwater has ſo lately proved to the world, that the advantages in an inland navigation are only to be effected by carrying and cutting level canals of dead water from one town to another, which admit not, nor are ſubject to, one half of the inconveniencies which the late method of making the rivers navigable, by pounding up the water by large and very expenſive locks, are of neceſſity required ſo from the force of the ſtream and floods. Nor can I here enough admire the wonderful and great natural genius of Mr. James Brindley, who has planned the ſame and perfected theſe canals, ſurmounting, with his own genius and his grace's money and ſpirit, things that might have been thought, by nine hundred out of a thouſand people, almoſt inſurmountable difficulties: the breadth of theſe canals are about eight yards wide and four feet deep, they are chiefly made in a ſtraight line over a flat country. His grace's firſt attempt was in order to carry coals from his works to ſupply Manchester, and other towns in Cheſhire and Lancaſhire; the laſt act of parliament enabled his grace to proceed to Altringham in Cheſhire, and which they are in great forwardneſs with; they have now completed about ſeventeen miles, at about 700 l. *per* mile, excluſive of the expence of bridges, &c. He has built a very handſome bridge over the river Irwell, in order to convey his canal acroſs; it is near fifty feet high and long, with three large arches, the

main arch being feet broad. There is a road on each side the canal over the bridge, for the horses to draw the vessels along; and indeed it is no unpleasant sight to see one vessel near fifty feet higher than another, sailing over the bridge at the same time that another is sailing near fifty feet below. There is one place where the canal goes over a highway from Manchester to Eccleston; but what is most ingenious, I think, is the invention of flood-gates that are under the water, and across the canal; they lie almost horizontally, a small matter inclining to each other at a quarter of a mile distance, in order that when any part of the canal shall break its banks, the draught of the water, rushing towards the breach, draws the two flood-gates up, by which means no more water is lost out of the canal than is contained between the two flood-gates; which, upon stopping the breach, is easily replenished, upon letting the gates down again, from the adjacent part; in short, the principle, upon which the whole is formed, is a determined and fixed resolution to carry the level on through all difficulties, which plainly appears in that great and most amazing bank of earth which they have carried across Stretford meadows, nine hundred yards long, seventeen feet high, and an hundred and twelve feet in breadth at the bottom; upon the top of which they have carried the canal four feet deep, eight yards broad, and one towing path on each side ten feet broad: after this difficulty I should think nothing too much for money to do, joined with a tolerable judgment and some ingenuity. I cannot tell what these canals, &c. have cost the duke, and I suppose the world will never know but by report; one may compute 100000 l. or upwards, which is not only the greatest undertaking that ever was executed by a subject
of

of this nation, but I may add of all the world. I have now shewn, I hope, that an inland navigation may be made by cutting canals through the lands, much easier and better, than pounding up the rapid current of the river by locks; I shall therefore now proceed upon that principle and plan, and make the following proposal to the merchants of Bristol, Liverpool, and Hull, and the intermediate inhabitants, as well as to the great council of the nation.

That a navigable canal be cut for the junction and communication of the great ports of Bristol, Liverpool, and Hull, and that the said canal shall pass from or near a place called Tern Bridge, at the river Severn, in the county of Salop, from thence a little higher up than the course of the river Wroxeter, across the Uppington road by Wanford and Allscot, across the road leading on the right to Wellington, thence by Crudgington (where the river Tern comes from Drayton) thence up by the Wildmoors by or near Chetwin Park, on the side of Pilson Hill, thence across the low grounds near Flashbrooke Hall in the parish of Adbaston, the first entrance into Staffordshire at Whitley Ford, from thence by the river Whit at Batchacre Grange, from thence by the side of the Hill Park, along Tunstall Moor, from thence into the valley below Offley Park Mills, where the highest summit of land is; across the brook that runs from Cockmere, in Eccleshall parish, thence along by Pershall low grounds, by Eccleshall and Byanna, thence down the valley to Hilcot and Chebsey to the river Sow, that comes from Standon, where, about a mile and a quarter above Bridgford, the proposed navigation from Liverpool by the river Wever must unite with the Bristol, and then proceed along the meadows on the right hand side the

river to Stafford, from thence down by the river Sow, across the Penk, thence by Baswich to Haywood Park, from thence by the Trent crossing the same, near Wolfely Bridge, and thence behind Bish-ton House over the river by Rudgeley across the brook by Lee Hall, Armitage and Bromley, across the river at Whichnor; thence by Branston and Seany Park, leaving the town of Burton on the right, by Monk's Bridge, across the river Dove to Eggington, being the first entrance into Derbyshire, from thence by Willington and Twyford on the right, by Cliff Hill, Black Pool, and Weston, thence into the river Trent at Mr. Drake's warehouse at Wilden, where the river Trent is navigable without any inconvenience from locks, though some few shallows, by Newark, Nottingham, and Gainsborough, to the great sea-port at Hull.

I have above planned out the course of the canal from Bristol to Hull; I have now only to describe the course of the Liverpool navigation from the Mersey, to the place where it unites with the Bristol canal (which I have before observed must be at Bridgford near Stafford.) The river Weaver comes into the Mersey at Frodsham, and is now by act of parliament made navigable by the means of locks as far as Northwich, and further up to Winsford, for the conveniency of conveying the produce of the salt-works to Liverpool: I would therefore propose, that a navigable canal should be made from Winsford on the river Weaver by Wever Bank, Minshull, Barton Cross, near Nantwich, from thence along the valley to Wybunbury to Checkley and Rynhill Hall (where it quits the county of Chester and enters Staffordshire) from thence through Madeley Park, being the highest summit of land (between which place and Whitmore the river Sow takes its rise and runs a south-east course to Stafford)

ford) from thence near Whitmore, Stapleford Bridge, Standon, Walford, Millmeese, Coldmeese, Shallowford, and Bridgford, where it must unite with the Bristol canal, and proceed to Wilden in manner before described to Hull. I have now planned out the proper course of the canals, in order for the junction by a communication in trade of the great ports of Bristol, Liverpool, and Hull; and as I speak from the authority of surveys taken, I make not the least doubt but the same is both practicable and very easy to be done, and at no very large expence, considering the great national utility it will be of, even to every individual, whose state of existence is not of the dormouse kind, and whose degree of capacity is only a small matter removed from the idiot, and will suffer him to feed himself; I will therefore proceed to shew how the same may be executed, after what manner, and in regard to the expence, will calculate and come to as near a certainty as the nature of these sorts of undertakings will admit of.

I would first propose that the land to be purchased should be eighteen yards broad, that the canal shall be in breadth, at the top of the water, nine yards, and six yards at the bottom, and two towing paths, four yards and a half each, on the sides of the canal; that the depth of the water should be at least five feet, on account of the different sorts of boats that are likely to come upon it: but as there ought to be some restriction, in regard to the construction of the boats, I should think they ought to be fifty feet long, and eleven feet broad, made much after the manner and form of those made at Bridgnorth on the Severn, and must draw no more than three feet and a half water loaded. These sort of constructed boats would better suit the navigation, in regard to the passing one another, and the preservation

preservation of the banks, and may be so built as to carry thirty tons burthen, and may cost about fifty pounds with a mast, mainsail, and towing line, &c. There might be a covered place in the steerage for a man and boy to lie in, as they will frequently want such convenience, especially where the country is thinly inhabited through which they pass; and also, when they have any valuable goods on board, it would be imprudent in them to lie on shore, lest they should be stole: there might also be a fore-castle, six or eight feet long towards the stem. These vessels will carry goods from Bristol to Liverpool, or Hull, without the trouble and fresh expence of reshipping, (as those boats now used by the duke of Bridgwater on his canals in Lancashire, will not bear the navigating the tide's way beyond the Hempstones) and on that account are both troublesome and expensive, being seventy feet long and six broad, and liable to numberless and immense inconveniencies, and take double the quantity of water and labour in carrying the same quantity of goods through a lock that the vessels I have here proposed do, exclusive of the expence, trouble, and inconveniency of reshipping. The sorts of boats cannot so properly be ascertained till the canals are made, as perhaps other constructed boats will appear to be as useful as the sort I have here described.

As this navigation must be open to all persons, it will therefore be somewhat difficult to confine every body to the same rules of having their boats made in such a manner, so as, in their passage, not to be a detriment to any part of the banks of the canals, and for observing all such rules and orders as may be made for the good of the same; upon that account, I have given as great a breadth for the top of the canals as possible, to obviate the

the above inconveniences, which are avoided in a private navigation, where all the vessels that can be used upon it are the property of one person, and the whole, both men and boats, under his directions.

The expence of these canals will come to about nine hundred pounds a mile, including the purchase of land, erecting locks, building bridges, and making the proper paths on each side for towing the boats; and surely this is not to be considered as a large sum, when it is well known that many turnpikes in England have cost one thousand pounds a mile to repair them. Then let us imagine the vast difference there will be in the carriage of goods, &c. between one and the other; we will say, for example, that on a mile of any such turnpike, one thousand tons of goods may be carried in a year, and in all probability the passage of goods upon any one mile of these canals may not be so little as one hundred thousand tons; therefore why can we think the expence great, according to this proportion of repairing turnpikes, when all goods may be conveyed from east to west much cheaper and faster than any other way by these navigable canals, and the price of carriage would always continue the same, whereas land carriage differs according to the badness of the roads, or the number of carriers, and is very often subject to great inconveniences, as well as all kind of brittle goods subject to be broke in pieces by the frequent loading and unloading into different waggons? It must therefore be allowed, that water carriage is undoubtedly preferable to land carriage, especially on these canals, where boats would meet with no difficulties, and always arrive by their station by their appointed time.

The distances from place to place are as follow:
From Tern Bridge, where the canal begins, opposite

posite to Batchacre Grange, twenty miles nine perches, from thence to the highest point of land, in the course of the canal, below Offley Park, four miles and five perches, from thence to the junction of the river Sow, where the Liverpool canal joins, six miles, thence to Bridgford one mile and one quarter, which makes thirty-one miles one quarter and one perch, to Stafford three miles three perches, from Stafford to or near Wolseley Bridge, where the Trent is crossed by the canal, six miles one quarter, from thence by Bishton to Wilden Ferry thirty-two miles, which makes forty-two miles.

The Liverpoole canal from the meadow above Bridgford in Staffordshire, where it joins the Bristol, to Madeley Park, being the highest summit of land in the canal course, near which place the water runs both ways, north-west and south-east, is ten miles two quarters, to Barton Cross thirteen miles, from thence to Winsford Bridge in Cheshire nine miles one quarter and six perches, which makes thirty-two miles three quarters and six perches.

The fall westward between Tern Bridge and the highest summit of land in the canal course, where the water runs both ways east and west, being in the valley below Offley Park, is one hundred and thirty-six feet nine inches, from thence to Bridgford eastward fifty-four feet eight inches, from Bridgford to Stafford Mill Pool, from thence to the crossing the Trent near Wolseley Bridge, and from thence to Wilden Ferry one hundred and sixty feet, between Bridgford, in the Liverpool canal, and the summit in Madeley Park, is one hundred feet three inches, from thence to the Wever, which runs a north-west and by west course to Winsford, is two hundred and eighty-four feet one inch.

The distances and falls will then stand thus :
The

The water runs both ways west and east from the valley below Offley Park, being the highest summit of land in the western district.

The water also runs both ways north-west and south-east in the valley below Madeley Park, being the highest summit of land in the northern district.

The water runs only one way, south-east from Bridgford to Wilden Ferry, being the eastern district.

Falls reduced.

	Miles.	Qrs.	Per.	Ft.	In.
Distance between the high summit of land below Offley Park and Tern Bridge on the Severn	24	0	13	136	9
From the same summit of land eastward to the junction above Bridgford	6	1	0	54	8
	30	1	13	191	5
From the high summit of land below Madeley Park to the junction above Bridgford	10	2	0	100	3
From the same point of land north-west to Winsford Bridge	22	1	0	284	1
	32	3	0	384	4
From the junction above Bridgford aforesaid south-east to Wilden Ferry	43	0	0	209	4

The reader must here take notice, that the high

high summit of land, between Offley Park and Cockmere Brook, being a mile and half, is an elevation of twenty-five feet, into which I propose digging and removing the said earth eighteen yards wide, the breadth of the canal, towing path, and drains; which we reduce to a level, that breadth, and a fall decreasing each way for a mile and a half in the whole, must be removed, at a medium, one hundred ninety-eight thousand and fifteen yards, which, at three pence *per* cubic yard, would cost two thousand four hundred seventy-five pounds, three shillings and eleven-pence; which reduces the level, and makes the fall to Tern Bridge westward one hundred and thirty-six feet nine inches, and to Bridgford eastward fifty-four feet eight inches; by which means it saves four locks at least.

He must also observe, that the high point of land, at Madeley Park, is likewise an elevation of twenty-five feet for a mile and a half, which I would also propose removing for eighteen yards broad, and a mile and a half in length, decreasing also each way (as both of them are in light ground, it would require but little trouble) and to reduce the whole of this elevation, as above, must be removed, at a medium, one hundred ninety-eight thousand, and fifteen yards, which, at three pence *per* cubic yard, would cost two thousand four hundred and seventy-five pounds, three shillings and eleven pence, which will reduce the fall south-east to the junction of the canal above Bridgford to one hundred feet, three inches, and a quarter, and from the said high point north-west to Winsford Bridge to two hundred eighty-four feet, one inch; by which means it would save four locks at least.

As these distances and levels are taken by persons who have been at a very great expence, it is hoped, that the public will find them very exact, which

which is not the case with all surveys that are published, many of them being frequently erroneous. And as in measuring each person's land, through which the intended canal is to pass, has been found very tedious, now I will consider the progress that is necessary to be made, in order to the obtaining an act of parliament for executing this great design.

I would propose that the plan and design should first of all be made public by printing, and dispersing the same throughout the ports of Bristol, Liverpool, and Hull, and all the intermediate towns, for their due consideration. That a public meeting should be advertised for three weeks in most of the public papers, to be held at Bristol, and all merchants, traders, and others, noblemen, gentlemen, clergy, &c. and all persons interested in the lands through which the intended navigation is to pass. It may be drawn up after the form following:

WHEREAS it is proposed to make a navigable canal between the river Severn, at Tern Bridge, in the county of Salop, and the river Trent, at Wilden, in the county of Derby, and also from the Wever, at Winsford, in the county of Chester, to communicate with the above at Bridgford, on the river Sow, in the county of Stafford, which will open a communication between the three great ports of Bristol, Liverpool, and Hull, and be attended with very great advantage to those ports, and all intermediate towns, and more particularly to the trade and commerce of this kingdom in general: a meeting of the landowners, merchants, and manufacturers, from the towns of Bristol, Gloucester, Worcester, Bewdley, Bridgnorth, Shrewsbury, Newport, Drayton, Eccleshall, Whitchurch, Stafford, Nantwich,

Nantwich, Northwich, and Chester, and also of the intermediate countries, who may be interested in, or affected by, such proposed navigation, is desired at the sign of the , in Shrewsbury, on Wednesday the 5th day of February, at eleven o'clock in the forenoon, in order to consider of the most effectual means of carrying the same into execution, and petitioning the honourable the house of commons of Great-Britain, for an act of parliament for the same, for the advantage of the landed, and the benefit of the commercial interest. It is desired that the masters of the great furnaces, forges, and other works, of Sambrook, Keinton, Tibberton, Upton under Haymon, Coalbrook, Dale, Ketley, Horsey, Wytheyford, Moreton, Willey, Pitchford, Sutton, Longnor, and all the various large iron manufactories lying upon the intended navigation, or Severn, will then and there give their attendance.

I would likewise propose, that the same advertisement should be inserted for a meeting at Liverpool the week after, and also at Hull the next week ; and then followed on at the towns of Gloucester, Worcester, Bridgnorth, Shrewsbury, Newport, Drayton, Eccleshall, Stafford, Litchfield, Birmingham, Wolverhampton, Tamworth, Burton, Newark, Nottingham, Gainsborough, and on the Liverpool side at Frodsham, Northwich, and Nantwich.

As we begin with Bristol, it would be necessary that a solicitor should attend with a petition to parliament, fairly drawn out on parchment, in order to be signed by most, if not all, at the meeting ; it may be drawn up in the form following. It would also be very proper that a solicitor from each

each of the three ports of Bristol, Liverpool, and Hull, should confer together, and attend each meeting; and if two merchants from each port were to attend, and recommend the navigation at each meeting, it would not be amiss, as it would give a sanction to the inland towns to follow their example, in cheerfully signing the following petition.

FORM of the PETITION.

To the honourable the Commons of Great-Britain in Parliament assembled:

THE humble petition of several gentlemen, land-owners, merchants, traders, and manufacturers, and others, residing within the counties of Salop, Stafford, Chester, Worcester, Gloucester, Somerset, and Derby, and the several cities of Bristol, Gloucester, Worcester, and Chester, and the several county and market towns of Shrewsbury, Bewdley, Bridgnorth, Whitchurch, Newport, Drayton, Stafford, Eccleshall, Burton, Betley, Nantwich, Northwich, and Derby, and the boroughs and ports of Liverpool and Hull.

Sheweth,

THAT by a survey made, it appears, that a navigable canal, or cut, may be carried from the river Severn, at or near Tern Bridge, in the county of Salop, to lead to or near Crutchington Bridge; from thence through the Wildmoors, by or near Newport and Chetwin Park, in the said county; thence by Batchacre Grange, Eccleshall, and Bridgford, in the county of Stafford; thence by Stafford across the Trent, by or near Wolfeley Bridge; thence by Bishton, near Burton, and Eggington, to Wilden Ferry, to communicate with the river Trent, in the county of Derby; and also for making a navigable canal from Bridgford aforesaid, through

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Madeley

Madeley Park, in the said county of Stafford, by or near Nantwich, in the said county of Chester; to Winsford in the same county; there to unite with the river Wever, and to communicate with the river Mersey, for the navigation of boats and other vessels, with heavy burthens: whereby an easy communication will be made between the three great ports of Bristol, Liverpool, and Hull, which, your petitioners conceive, will be of very great advantage, not only to the trade carried on, to and from the said ports, but to the several manufactories, and great iron-works, which abound in many places, through or near which the said canal, or cut, is intended to be made; and for the conveyance of salt, cheese, corn, coals, lime, hops, cyder, timber, stone, bricks, tiles, and other produce of the said several counties, through which the said canal, or cut, is intended to be made; and also will be of great public utility.

Your petitioners therefore humbly pray, that leave may be given to bring in a bill, for the making and maintaining such a navigable cut, or canal, as aforesaid, by such ways and means, and with such powers, and under such provisions and restrictions, as to this honourable house shall seem meet.

There likewise should be a memorandum of an agreement, or consent, from all the land-owners, through whose lands the canal is to pass, fairly drawn up, to be signed by them, to signify their consent, to be laid before parliament, in manner and form following:

WE, whose names are hereunto subscribed, do hereby severally consent to have a navigable canal cut through our estates in the counties of Salop, Stafford, Derby, and Chester, between Bristol,
Liverpool,

Liverpool, and Hull, by the authority of parliament; proper provision being made in the act for an adequate compensation for the land to be taken in for that purpose, and for other damages sustained thereby.

It is also necessary to have two persons, who saw them sign, to prove the hand-writing before the committee of the house of commons.

There should also be drawn up fairly upon parchment a subscription, in the manner of a promissory note, which should be handed about, in order for the merchants, &c. to subscribe for the support of the expence of the intended canals: no person to subscribe more than 4000*l.* to be deduced into shares at 200*l.* *per* share, at 5*l.* *per cent.* It may be drawn up in these words following:

WHEREAS it is proposed, that a navigable cut, or canal, shall be made, by authority of parliament, from Tern Bridge, on the river Severn, in the county of Salop, by Crutchington, in the said county; thence by Batchacre Grange, Eccleshall, Bridgford, Stafford, by or near Wolfeley Bridge and Bishton in the county of Stafford; from thence near Burton to Wilden Ferry, in the county of Derby, on the river Trent; and also from Bridgford aforesaid to Madeley Park by Nantwich, to Winsford Bridge in the county of Chester, in order to unite with the Weaver, to communicate with the river Mersey, and thereby make a convenient navigation between the three great ports of Bristol, Liverpool, and Hull.

And whereas it is proposed to raise a fund to defray the expences in making and finishing the said canals; which will require the sum of one hundred and sixteen thousand pounds: and it being intended, that the same shall be divided into

Madeley Park, in the said county of Stafford, by or near Nantwich, in the said county of Chester; to Winsford in the same county; there to unite with the river Wever, and to communicate with the river Mersey, for the navigation of boats and other vessels, with heavy burthens: whereby an easy communication will be made between the three great ports of Bristol, Liverpool, and Hull, which, your petitioners conceive, will be of very great advantage, not only to the trade carried on, to and from the said ports, but to the several manufactories, and great iron-works, which abound in many places, through or near which the said canal, or cut, is intended to be made; and for the conveyance of salt, cheese, corn, coals, lime, hops, cyder, timber, stone, bricks, tiles, and other produce of the said several counties, through which the said canal, or cut, is intended to be made; and also will be of great public utility.

Your petitioners therefore humbly pray, that leave may be given to bring in a bill, for the making and maintaining such a navigable cut, or canal, as aforesaid, by such ways and means, and with such powers, and under such provisions and restrictions, as to this honourable house shall seem meet.

There likewise should be a memorandum of an agreement, or consent, from all the land-owners, through whose lands the canal is to pass, fairly drawn up, to be signed by them, to signify their consent, to be laid before parliament, in manner and form following:

WE, whose names are hereunto subscribed, do hereby severally consent to have a navigable canal cut through our estates in the counties of Salop, Stafford, Derby, and Chester, between Bristol,
Liverpool,

Liverpool, and Hull, by the authority of parliament; proper provision being made in the act for an adequate compensation for the land to be taken in for that purpose, and for other damages sustained thereby.

It is also necessary to have two persons, who saw them sign, to prove the hand-writing before the committee of the house of commons.

There should also be drawn up fairly upon parchment a subscription, in the manner of a promissory note, which should be handed about, in order for the merchants, &c. to subscribe for the support of the expence of the intended canals: no person to subscribe more than 4000*l.* to be deduced into shares at 200*l.* *per* share, at 5*l.* *per cent.* It may be drawn up in these words following:

WHEREAS it is proposed, that a navigable cut, or canal, shall be made, by authority of parliament, from Tern Bridge, on the river Severn, in the county of Salop, by Crutchington, in the said county; thence by Batchacre Grange, Eccleshall, Bridgford, Stafford, by or near Wolfeley Bridge and Bishton in the county of Stafford; from thence near Burton to Wilden Ferry, in the county of Derby, on the river Trent; and also from Bridgford aforesaid to Madeley Park by Nantwich, to Winsford Bridge in the county of Chester, in order to unite with the Weaver, to communicate with the river Mersey, and thereby make a convenient navigation between the three great ports of Bristol, Liverpool, and Hull.

And whereas it is proposed to raise a fund to defray the expences in making and finishing the said canals; which will require the sum of one hundred and sixteen thousand pounds: and it being intended, that the same shall be divided into

five hundred and eighty shares, and that no person shall possess more than twenty shares, and that the money shall be advanced by each subscriber, in equal proportions, as the same shall from time to time be wanted; and bear lawful interest from the time of paying such sums till the said navigation shall be compleated; and from the time of the completion thereof, to receive their proportion of the profits arising thereby, according to their respective shares, which shall be made transferrable by a form prescribed in the act.

Now we, whose names are hereunto subscribed, do severally promise and agree to pay such person, or persons, as shall be nominated and appointed in the said act to receive the same, or in failure of such act, then to the treasurer, or treasurers, of the said fund, to be appointed by the major part of the subscribers, the several sums of money subscribed, or figured over-against our respective names, for the raising the fund proposed, to defray the expences of soliciting the said intended act of parliament, and making, cutting, and compleating the said intended canals, and other charges incident thereto.

There should likewise be set on foot a subscription paper, to support the expence of obtaining the act of parliament; which money, if the bill passes both houses, is to be received as in part of the subscription money, or to be repaid them out of the general stock: if the bill fails, they must live by the credit of having contributed and lent their assistance to the greatest good that can ever happen to the inland parts of this nation, as well as to the commercial interest in general. It may be wrote in the following manner:

WHEREAS there is a petition intended to be presented to the honourable the commons of Great Britain,

Britain, for leave to bring in a bill, for the making a navigable cut, or canal, from the river Severn, at Tern Bridge, in the county of Salop, by Crutchington Bridge, in the said county, by or near Batchacre Grange, in the county of Stafford, thence by Eccleshall, Bridgford, Stafford, by or near Wolsley Bridge in the said county, from thence near Burton to Wilden Ferry, on the river Trent, in the county of Derby; and also for making a navigable cut, or canal, from Bridgford aforesaid, to Madeley Park, in the said county of Stafford, thence by Nantwich, to Winsford Bridge, in the county of Chester, in order to unite with the river Wever, to communicate with the Mersey: therefore to facilitate and promote the said petition and bill, we whose names are hereunto set and subscribed, do severally promise to pay to Mr. John Stevenson, mercer, in Stafford, the respective sums set, or figured against our respective names, for the defraying the expences in endeavouring to obtain the said act, and other charges incident thereto: such sums to be considered and taken as in part of payment of such our respective shares, in case the said bill shall pass into a law, as shall subscribe to the general fund for making and compleating the said canals; and, if the said bill does pass into a law, then such of us as shall not chuse to become subscribers to the said fund, shall be repaid this our present subscription out of the said general fund.

There should also be produced, and read to the meeting the following resolutions for their consent and approbation, or alteration, as they shall think proper, at each meeting, at the three ports; and those resolutions to be directly printed in most of the public papers, to shew what was agreed to at the first meetings.

five hundred and eighty shares, and that no person shall possess more than twenty shares, and that the money shall be advanced by each subscriber, in equal proportions, as the same shall from time to time be wanted; and bear lawful interest from the time of paying such sums till the said navigation shall be compleated; and from the time of the completion thereof, to receive their proportion of the profits arising thereby, according to their respective shares, which shall be made transferrable by a form prescribed in the act.

Now we, whose names are hereunto subscribed, do severally promise and agree to pay such person, or persons, as shall be nominated and appointed in the said act to receive the same, or in failure of such act, then to the treasurer, or treasurers, of the said fund, to be appointed by the major part of the subscribers, the several sums of money subscribed, or figured over-against our respective names, for the raising the fund proposed, to defray the expences of soliciting the said intended act of parliament, and making, cutting, and compleating the said intended canals, and other charges incident thereto.

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There should also be produced, and read to the meeting the following resolutions for their consent and approbation, or alteration, as they shall think proper, at each meeting, at the three ports; and those resolutions to be directly printed in most of the public papers, to shew what was agreed to at the first meetings.

R E S O L U T I O N S.

At a very numerous meeting of noblemen, gentlemen, land-owners, traders, and manufacturers, held at the sign of the Star, in Stafford, the 10th day of August, 1766, it was unanimously agreed,

That application be made to parliament this session for an act to make a navigable canal, from the river Severn, at Tern Bridge, in the county of Salop, and the river Trent, at Wilden, in the county of Derby; and also from the Wever, at Winsford Bridge, in the county of Chester, to communicate with the above at Bridgford, on the river Sow, in the county of Stafford.

That it will be most convenient for the execution of this undertaking, if the expences of making and compleating the said navigation, which have been estimated at 116000 l. were to be distributed into 580 shares, and raised by subscription; that no one person should have more than twenty shares; the money to be advanced by each subscriber in equal proportions, as the same shall be wanted, and the shares made transferrable by a form prescribed in the act.

That a subscription be immediately opened, for to raise a fund to support the necessary expences of passing the act; that the money there subscribed shall, after the obtaining of the act, be repaid to such as shall not be subscribers, and allowed to such as shall be subscribers in part of payment of their shares.

That a subscription be also opened for the money which will be wanted, for making and compleating the said navigation; that twenty days be allowed after this day to complete the said subscription.

That

That the names of subscribers may be entered with of Bristol, Gloucester, Worcester, Salop, Bewdley, Bridgnorth, Newport, Drayton, Eccleshall, Stafford, Litchfield, Tamworth, Birmingham, Wolverhampton, Rudgley, Burton, Walsall, Dudley, Derby, Nottingham, Newark, Gainsborough, Hull, Nantwich, Northwich, Newcastle, Congleton, Frodsham, Chester, and Liverpool, where books will be kept for that purpose; and an account is desired to be transmitted from each gentleman at the end of twenty days to of Stafford (being about the center) of the subscriptions at each place; and, if the subscription shall not then be complete, to be left open until it is: the first subscribers to have the benefit, if the sums subscribed shall exceed the sum wanted. That subscribers are to have votes, according to their number of shares, in the annual choice of a convenient number of directors, to be limited in the act, who shall have the management and inspection of the work, and to have commissioners named in the act, to determine all controversies and disputes that may arise.

That proper provision should be inserted in the act for making full satisfaction to the land-owners and their tenants, for all lands to be taken in for the use of such navigation; and for all damages, both present and future, which they may sustain thereby; and for giving all proper conveniencies to such land-owners and their tenants: the same to be determined by commissioners, or juries where necessary, unless the parties agree otherwise.

That it be proposed for the consideration of parliament, that a proper toll be taken as tonnage, to be fixed by the act at about 1s. 6d. *per* ton, for each ten miles that each vessel shall pass upon the said

navigation; and also, that the subscribers may be paid 5l. *per cent.* for their money, in the respective sums advanced, from the time of their paying in the same, till the whole communication between the three ports shall be compleated; and from that time they may receive their proportion of profits, according to their shares; and that the subscribers be permitted to vote by proxy.

That no toll be taken for stone, gravel, or other materials, for repairing the road; nor for dung, soil, lime, and other manure, used only for the improvement of land.

That these resolutions be printed in most of the public papers for three weeks successively.

I have now gone through the forms and proceedings (except the levels and estimates, which will be given at the end of the treatise) necessary for the obtaining an act of parliament, for the carrying into execution the foregoing plan of the navigation, between the three great ports of Bristol, Liverpool, and Hull; I shall only add the following observations on the inland trade, and some few on the increase of the export trade: having considered, in the former part of this treatise, many of the great advantages to this nation by inland navigation, I shall only subjoin a few more under the following heads.

The vast importance that trade is of to this nation, is too frequently and too strongly instanced, even in the disturbances of any manufacture whatsoever, which seldom fail to draw not only the attention of the people, but also the serious consideration of the legislature, to interpose and alleviate their calamities and distresses. The late uneasiness of the weavers in London was a striking instance, that the least indulgence to admit foreign goods into this

this nation, (when our manufacturers in Spital Fields were able to furnish as good, if not better) and preferring them to our own, was a clog upon our trade; and the distresses of a few, had like to have embarrassed the rest of the nation to find redress for their complaints: nor can I get out of my head, the present stop to all sort of trade in these parts, and the dreadful situation that thousands of families are in, from the refusal the noble Americans have lately made of having any trade or communication with its mother state, intirely occasioned by an imprudent and ill-considered measure taken by the late administration, by the advice of the financier Mr. G. G. in arbitrarily imposing the stamp act upon the Americans; in the illegality of which, both reason, argument and humanity, have refused to be parties concerned.

I have said, that to trade we owe our opulency, and for that conveniency, by far the greater number of this nation have fixed themselves in towns, and have stripped the country of every laborious cottager (lately swarming with a cluster of healthy children) by the landlords laying their farms into large takes; therefore the greater numbers having got together, and trafficking with each other, it is natural, even on that account, to have the greater regard to their prosperity; and as they subsist by trade alone, it is fitting the nation should do all they can to protect, increase, and encourage it: in short, it is by trade alone we live, and by society we are made happy; they being only brought about by an easy communication and connexion one with the other, throwing the whole nation as it were upon a kind of equality, giving to every man a liberty to improve. Among the antients, commerce did not appear unworthy the application of persons of the first rank: Solomon, we are told, frequently
joined

joined his merchants fleets with those of the king of Tyre for their voyage to Ophir, and by this means rendered himself, though in a little kingdom, the richest king of his time in the universe. How greatly did trade flourish under the Romans, what vast companies of merchants in the different cities are mentioned by our historians, and we always find, that those nations which abounded most in shipping and navigation were the first leaders in trade, and spread themselves in all the Levant ports and Egypt. The Greeks and Romans thus acquired their lustre and power, and upon the ruins of them is our modern commerce founded trading to the same places. It is morally impossible for men to flourish without the assistance of each other, as well as an easy communication from place to place. What makes the Dutch not only vie with all the world in trade, but really eclipse them? what but their vast conveniencies of inland navigation, by which the produce of all the internal parts of the provinces become an external commodity, and are carried to the furthestmost parts of the globe; returning to the industrious labourer, who was the original proprietor, (of what would have been of no value at his own home) triplefold, and the returns made in things the most useful to his family. It was the easiness and practicability of making canals, that first led the Dutch to the desire of the advantages of trade and commerce, in which it must undoubtedly be allowed, they exceed all other nations, entirely owing to their inland navigable canals. The trade of Britain may claim some place under the shield of commerce, but it seems astonishing to a cool considerate mind, that the Britons should never heretofore have attempted inland navigations; nor endeavoured to bring an easy and mutual intercourse through the whole island, and
let

let each subject share the gifts of nature in a more equal degree, by which means, the exports would be doubly increased, and a greater demand for the imports.

But was I here to give an account of the different canals, that are in various countries, and the advantages and general utility derived from each, to its different inhabitants, I should greatly deviate from the intent of this treatise; though I cannot help just mentioning the famous canal of Languedoc in France; it is 64 leagues, or 192 miles, in length, and runs under ground a very considerable way: it is supplied with water by a magazine at St. Feriol of 595 acres.

To shew how vast the income is of these canals, I will instance those of the seven Dutch provinces, whose yearly income is two hundred and fifty thousand pounds for about forty miles inland navigation. The prodigious and immense undertakings in cutting canals are astonishing. The Ladoga canal, designed for the use of Petersburgh, is four hundred and sixty miles long; the canal between the Caspian and Euxine seas, from the Don to the Wolga, is nigh one hundred miles.

The great canal cut to draw down the lake of Mexico employed four hundred seventy-one thousand one hundred and fifty-four men. Vid. Coll. of Travels, vol. iv. page 531.

The advantages from these canals to this nation, will be very great, as every person must allow that the stamina of our trade is the internal produce of the kingdom, and the nearer each manufacturer is to his market, the greater price his goods will take; for instance, if a person manufactures a piece of cloth, (such as is usually sent abroad for sale to America, or elsewhere) in the county of Stafford, where he lives forty miles from the merchant's ship,

ship, that is to carry it abroad, will he not be obliged to sell it, upon account of the heavy charge of land carriage, for a much less price than if he could convey it at an easy rate to the sea-port, by means of this canal; and there sell it at the same price that the factor would? Let us only consider that the factor buys up the goods, or manufactures of, perhaps, forty or fifty poor persons, and conveys them to the merchant at a very considerable large profit, which falls into the hands of the factor alone, and enriches only one; whereas, was each manufacturer to have a conveniency of conveying his own goods directly to the merchant, all the profits, monopolized by the factor, would be divided equally among the fifty poor persons, and enrich that number instead of one: the more hands any goods or merchandize go through, the clearer they are to the consumer, as every person, through whose shop they go, must have a profit; but in this case the factor monopolizes the whole profits of fifty poor manufacturers.

In case of invasion, or rebellion, by these canals, our government would be able to transport their very heaviest cannon to any part of the country in a very short time; as also regiments and their baggage might be conveyed in a much safer way, than by long, tedious, harassing marches, through roads, that are almost impassible, and oftentimes very far round to the point to which they want to come; besides the saving in artillery horses and the expence of baggage waggons to the government, which usually amounts to nigh as much as the pay of at least a third part of the regiment for the time. Every person must remember the great difficulties in conveying the cannon and other military stores in the inconsiderate rebellion in 1745, even fourscore miles from the metropolis, so excessive bad and deep then were the high-roads

of

of these western parts; and, indeed, to speak the truth, was the government to have occasion now to convey the same military stores, there would be but little more expedition, unless sent by navigable canals.

It has been a common objection against navigable canals in this kingdom, that numbers of people are supported by land carriage, and that navigable canals will be their ruin; and it has as often been said, to remedy that inconvenience, that those people may take to other trades, and turn either farmers or navigators; and, instead of driving the waggon, they may learn to steer and navigate a boat, which, in time of war, may turn out to the advantage of the navy, or merchants service (upon both which most of our learned authors agree that our safety depends); but I, more supple to the inclinations of my fellow-countrymen, am unwilling to unbend the crooked finger, or streighten the almost distorted joint, inured to tally with the stroke of its accustomed trade, and at his old age deprive him of the art of his employment, and leave him in his second childhood to begin the world again: and as the land carriage is chiefly carried on from trading towns and their neighbourhood, I must advance a very uncommon alterative, which would free the carrier from any fear of losing his employment, or selling off his stock of horses, viz.—That no main trunk of a navigable canal ought reasonably to be carried nearer than within four miles of any great manufacturing and trading town, considering the present state and situation of affairs, and the proprietors of blending the landed with the commercial interest; which distance from the canal is sufficient to maintain the same number of carriers, and employ almost the same number of horses, as usual, to convey the goods down the canal, in
order

order to go to the sea-ports for exportation. When any person considers the advantage of this nation, they must consider that of every individual, and see that one is not burthened in order to unburthen another ; I therefore have produced this uncommon argument to favour the landed, as well as the commercial interest, which I think proves, considering both interests together, that it is not for the benefit of every individual in a trading city, to have the navigable canal come close to their town, but that the same should be at a proper distance, about four miles, so that each trade may still have some employ, those that carry the goods and merchandize, as well as those that manufacture them : there is no doubt, but the person, who manufactures the goods, might afford to export them to foreign markets much cheaper, by having the navigable canal come close to him ; but then we must consider all parties when we talk of trade, and not let the carriers starve while the traders and manufacturers ride in their coach and fix, exulting over their dejected, distressed brethren, and fellow creatures. If a manufacturer can have a certain conveniency of sending his goods by water carriage within four miles of his own home, surely that is sufficient, and profit enough ; considering that other people must thrive as well as himself ; and a proportion of profit to each trade should be the biasing and leading policy of this nation.

It has been often objected, that an inland navigation destroys that noble breed of draught horses, as there being little or no occasion for them, and upon that account, that the farmers would not be able to sell their oats ; and it has as often been pleaded in excuse, that the farmer might then turn his oat ground into wheat ground,

ground, and instead of so much land being employed to furnish food for one thousand horses; when turned into tillage, fit to sow wheat upon, might produce sufficient bread corn to feed two thousand poor families; my treatise here will not allow me to discuss each point so fully as I could wish, therefore, as I have before expounded the commercial and landed interest in a medium way, I will rest this debate upon the merits of the former clause.

There certainly is nothing that requires the attention of the people of this nation more than the progress of husbandry, and in thinking of that we cannot have too great a regard to the interest of the farmer, and to ease him, as much as we can, in the burthens and hardships he undergoes, even to support himself and family upon skimmed milk, whilst he saves the cream for the rest of his fellow creatures, and disperses it abroad in the nation to the nourishment of thousands. What great advantages will he not receive from these canals, by being able to sell his corn and carry it to any market, at any time of the year! and as the plenty of corn in this kingdom, and the easy conveyance of it from one place to another, is what will make a greater equality thro' the whole kingdom; and when it is cheap at home, he will be able to get a better price, by conveying it to another market; and if it should happen to be dear, any quantity might soon be brought from another country to supply their wants, by which means it would always keep a medium price, the whole communication thro', or in any place, within twenty miles of the canal: it would then be an uncommon thing to hear of a riot on account of the dearness of corn; and I cannot help observing, that, if corn and provisions are cheap, the manufacturers might be able to
work

work cheaper, and in so doing might always keep up a good export to foreign markets, in being able to undersell other nations, and at all times to have a market (on account of the merchandize being sold cheaper) at foreign ports, in preference to other nations.

The exportation of corn encourages the growth of it, and is one main branch of the trade of this nation, and ought to be countenanced, I mean in a proper degree, and bear a proportion in the exports, according to the price or scarcity of it. Whilst corn upon an average is no more than five shillings and sixpence *per* bushel, let the exports be uninterrupted; but, when it advances higher than six shillings, it is time then to stop it in a proportionate degree: I hope, when I say it is a branch of our trade, that the sum of seven millions and a half of money, which from the year 1746 to 1750 inclusive, was returned to this kingdom for five millions of quarters of grain exported (as appears from an account laid before the house of commons in 1751) will be a proof of its importance. Surely this well deserves some attention, as a main branch of our trade, and such a one, that under this present happy government will always increase, instead of diminish, as the basis of that trade is the yearly product of our lands, and the materials all within ourselves; and whilst agriculture is daily improving, and the quantity of tilled land (from the inclosing of commons) is daily increasing, this seems the only natural trade; all others seem grafted here from a foreign soil, and sometimes are too subject to canker at the root. How great will be the increase of the exportation of corn from these inland canals, when every farmer in the adjacent counties can almost, as it were, ship his corn from his own barn, and
receive

receive all the profits that the factor had used to have from the merchant himself! I will now endeavour to shew how much he will be a gainer by that convenience. Supposing that a farmer in Staffordshire (from whence immense quantities of corn are carried to Woor or Sandbach by land carriage, in order to go to Manchester for home consumption, and to Liverpool for exportation) carries, for instance, one ton of corn, which he has agreed with the factor to deliver at Woor, or Sandbach, in Cheshire; the charges of his team, and himself, and man, going fourteen miles, will not be so little as twenty shillings, as he must be out two days; when he might send the same quantity of corn in a boat of his own, at one shilling and six-pence *per* ton for each ten miles, so it would not cost him, with charges included, more than five shillings; but, if he should pay freight, it might be about one shilling and six-pence, for each ten miles, more than if he had his own boat: but I will go further, and say, that he might deliver it at Liverpool himself, at the same tonnage and freight, which would amount to a very trifling sum more, at which place he would receive all the profits that the factor had used to monopolize by such conveyance. His horses may be then employed in improving his land, by carrying marl and manure to it, inclose and till more land, which are now waste grounds and commons. How greatly would agriculture be improved, and the increase and produce of our lands fulfill the proverb of returning tenfold, and the shepherd made happy by the increase of the sheep! I cannot omit mentioning, before I finish these general advantages, that prodigious and immense convenience to this nation that the merchants of the three ports will receive from being able, for instance, to send their merchandize by this canal, from Bristol to Hull;

it is joining the East and West together. A merchant that trades from Bristol to the north-east parts of the globe, will send his goods by this canal, to be shipped at Hull; and also a merchant at Hull, trading to the south-west parts of the globe, will send them by the same canal to be shipped at Bristol; by which means they will both avoid that most tedious and hazardous voyage of two months round the Land's end, and also avoid the expence attending those dangerous voyages, and find themselves considerable gainers.

I must here observe, one great and very material advantage that inland navigation is of in the means of keeping, through a whole country, an equimediate price of provisions; for when any commodity is cheap at home, they may carry it to a more populous part, to get a proper price for it; and, when it is dear at home, it may be fetched from a cheaper market, and the poor will never be so liable to suffer through monopolies.

The great advantage that this kingdom will derive from a less number of horses being kept for draft is prodigious; as the same lands that kept twenty thousand horses will now keep perhaps thirty thousand fat oxen; by which means butchers meat will be always cheap to the labouring poor; and the quantity of fat, from so many beasts, will of course make candles cheap; and so many hides will lower the present price of leather, and, if so, of shoes, and all other things made of leather. Or the same quantity of land may then keep thirty thousand cows, the milk of which will make both butter and cheese cheaper to the poor, as well as to the labouring manufacturer; all which articles are very considerable, and of material moment in the price of their manufactures; as they, in a great measure, work their trade to rise and fall

fall in price, according as the cheapness, or dear-ness, of their materials and the necessaries of life come to them.

Inland navigation will encourage old manufactures to work with fresh vigour, now their materials come cheap to them; and will give opportunity to set up new trades and manufactures, as they can convey the produce, or materials, to any part whatsoever.

There are many large mines of valuable contents, that, for want of carriage and conveyance, now lie dormant, such as stone, iron ore, marble, and quarries of various sorts, that would then be opened and set on work, and turn perhaps to the great advantage of the proprietor, as well as to the various parts of the kingdom, that would become purchasers of them at an easy rate.

The coasting trade seems to claim mention of the great advantages that will accrue to it by these navigable canals, as all or most of the goods, that have usually gone by land-carriage from London to these countries, will now be sent by shipping to the ports, and from thence be dispersed far and wide by means of these navigable canals; for the more you open a channel, the more water is drawn from the head, and consequently works its way further on.

They will certainly cause more shipping on the coasts to be employed, and more sailors to navigate them. I must here make one observation, that old men, and worn-out sailors, may be employed on these navigable canals; and those, whose constitution will not suffer them to undergo the hardships and severities of a sea voyage, yet may do very well to navigate these vessels on the canal: every boy in each village, through which the canals run, will have a desire to become a sailor, and

will be trained up in his early youth to hand a rope, and soon become fit to be of service on board a ship: by which means these canals will become one of the most natural nurseries for seamen for his majesty's fleets, and the protection of this island; as also of shipwrights upon any emergency; both which are certainly great advantages to any state.

These canals will be of great advantage to the landed estates, as more persons will now come and settle themselves on many commons adjacent to the navigation, for the benefit and conveniency of trade, and thereby improve and inclose those barren lands; and the present enclosed lands will reap great benefit, either by draining some that want it, or flooding others, being reckoned a great improvement to meadow lands.

I think the result of every plan and scheme for the public service, should ultimately terminate in the giving assistance to the distresses of the poor, and relieving their wants, by letting them have the necessaries of life at a cheap rate. This I term charity to our brother; this the stamina of our trade, and a principal security for our present and future affluence.

The immense advantages that will accrue to this nation, and the variety of instances in which it will be proved from inland navigation, is as morally impossible to be described by one pen, as it is to number the sands on the shore: I shall therefore proceed to shew some few local advantages to the manufactures only bordering on these canals.

I will begin with the country about Tern Bridge, in the county of Salop, as the canal begins there at Severn. The amazing number of large iron works within four or five miles thereof, and

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all the way to Batchacre Grange, are astonishing; there are five large furnaces, *viz.* Coalbrook Dale, Madeley Wood, Lightmore, Horsehay, and Ketley, which are computed to turn through their hands at least eighty thousand pounds a year each; and nine large forges, which may be computed to turn through their hands twelve thousand pounds each *per annum*, *viz.* Keinton, Tiberton, Upton under Haghmon, Withiford, Moreton, Pitchford, Sutton, Longnor, and Sambrook. There are several other iron, coal, and lime works, and large manufactories in the neighbourhood of the rivers Tern and Severn, that will border, or lie within four miles of this intended navigation. There are also on the Cheshire side, lying on or near the river Sow, two more furnaces, *viz.* Madeley and Doddington, which may be computed as above; and four forges, *viz.* Lea, Winnington, Norton, and Warmingham, to be computed as above; besides many other large iron and coal works and other manufactories.

As the great iron trade here carried on is but little known in other countries, I will proceed to shew what weight of carriage, and number of tons of materials used in that branch alone, comes in and goes out. As I collected my information from a master of one of the iron works, I hope it will appear that I have considerably underdone it rather than overdone it: I shall therefore in the following table shew the number of tons coming in weekly and yearly, and going out.

The NAMES of each FURNACE and FORGE that lie bordering, or within four Miles of the intended CANAL, most of them close to it.

Six furnaces, computed yearly to turn thro' l. s. d.
 their hands each — — 80000 0 0
 Two ditto omitted.
 Twelve large iron forges, computed to turn
 through their hands yearly each 12000 0 0
 Two ditto omitted.

624000 0 0

FURNACES.

Coal-Brake Dale	—	—	—
Madeley Wood	—	—	—
Ketley	—	—	Shropshire
Horsehay	—	—	—
Lightmore	—	—	—
Willey, no account	—	—	—
Doddington	—	—	—
Madeley, no account	—	—	Cheshire
Furnaces weekly tons			—

Tons of Iron brought in Weekly upon a Me- dium.	Tons of Iron manufactur- ed going out Weekly.	Tons of Pit Coal used Weekly.	Tons of Charcoal u- sed Weekly.
80	40	40	
80	40	40	
80	40	40	
80	40	40	
40	20	20	
40	20	20	
400	200	200	

Tons of Pig Iron brought in Weekly	Tons of Iron manufactur- ed going out Weekly.	Tons of Pit Coal used Weekly.	Tons of Charcoal u- sed Weekly.
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Sambrook

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You must observe, that the foregoing calculation is made within a circle of twenty miles. They frequently send iron to Burton by Ivesey Bank, which might be sent by these canals; and also to Chester and many other places at a very great distance. By lowering this heavy charge of carriage, the iron masters will afford to manufacture their iron much cheaper, and consequently be able to undersell any foreign markets, or any iron that shall be imported; and in a few years will prevent the use of it, by being able to sell at a lower price than foreign iron can be sold at. As long as iron takes a price, it will always be imported; and whatever iron comes to a sea-port, whilst your home-made iron is at a high price, will always work itself into the heart of the kingdom, let the passage, or conveyance, be as difficult as it will: but when once your materials come cheaper to you, to manufacture your iron with, you will be able to sell cheaper, and by that means only, will prevent the importation of foreign iron.

Cumberland ore alone is a very important article, which will entirely be conveyed along this canal from Frodsham in Cheshire: a very small furnace will use at least one thousand one hundred tons of it in a year, which comes now entirely by land-carriage from Winsford Bridge, in the county of Chester, at six shillings *per* ton, for a very small distance, which may be conveyed by these canals to all or most of the furnaces and forges. If Liverpool and Hull should ever have a separate navigation, they will send foreign iron into those countries, which these iron works, I have now been speaking of, used to supply; I have therefore proposed this plan for the junction of the three ports at the same time, otherwise the iron masters about Severn in Shropshire would

have no opportunity of such easy conveyance, and consequently lose the market, and must of necessity decrease their sale, and greatly injure their works. I have dwelt thus long upon the iron trade, to shew that no branch of manufacture can reap more immediate benefit from the making of these canals for navigation, or more sensibly feel the want of them when other parts of the kingdom have them.

The next article of trade is the immense number of great coal works that lie bordering upon this canal, in Shropshire, Staffordshire, and Cheshire. I will first rank those at Ketley in Shropshire, many thousand tons of which are conveyed yearly to Shrewsbury by land-carriage, which might be sent by water: there are very great lime works nigh this canal, belonging to Brook Forrester, Esq; at Steeraway; the tons of lime got yearly may be about twenty thousand, used for manure of land and for building; the yearly demand is very large; ten thousand tons of which might be carried by water. About Newport, at Linsel, are very large coal and lime works belonging to earl Gower, and others, the produce of which is very great, computed yearly at about thirty-five thousand tons of coal, and thirty-five thousand of lime; ten thousand tons of each of which, might be conveyed to all the north, east, and west parts of these countries, and might almost be delivered at the works into the boats, as a canal might very easily be made from the bottom of the Hill by Cheshul Grange, to unite with this canal a little below. The whole of the land to be cut through being his lordship's property, and, if his lordship did not chuse to do it, the proprietors would gladly undertake it. The towns of Eccleshall and Stafford, and the countries between, might be supplied at a cheap rate, and firing come more reasonable.

sonable to poor people. There are likewise several large coal works about Madeley Park, *viz.* Ley-fit, Scotthay, and others, belonging to Sir Nigil Griesly, Mr. Crew, Mr. Meyneill, and Mr. Pool. There is also limestone at Bishop's Offley, in the parish of Adbaston, but for want of the convenience of having coal to burn it with, is made no use of. There are also other large coal works in Cheshire, that go by various names, which supply the furnaces there, and also the town of Nantwich, Betley, and all the neighbourhood: Nantwich alone, in its present state, may be computed to use twelve thousand tons, and its neighbourhood to Winsford about fifteen thousand, which might be conveyed along this canal from Madeley pits, in Staffordshire; and instead of costing ten shillings *per* ton land-carriage, would only cost one shilling and six-pence *per* ton, besides freight, which may be reckoned at as much more; so that the article of coals alone will be decreased to the labouring poor, and to the consumer, seven shillings out of ten shillings, besides the being able to fetch them at all seasons of the year, let the roads be as bad as they will, having then little concern with them.

The next article that will prove the usefulness of these canals is the lime, which is used for the manure of land, and is a most excellent and quick improvement: it has hitherto been only used where the carriage comes easy, it will therefore now become general, and many lands that have never yet felt it, will soon look with another countenance, and prove how greatly useful a navigation is to any country.

I cannot help mentioning the great quantity of cheese that goes to Bridgenorth fair yearly, from most parts of Cheshire and Staffordshire: it is impossible

possible to make an exact calculation, but suppose we say a thousand tons from these parts, which are now carried by the farmers waggons for twenty or thirty miles, being obliged to stay out with their team, at great expence, three or four days, perhaps little less than thirty shillings with two tons of cheese only, which might be conveyed by this canal for twenty miles, freight and tonnage, for six shillings only; and from Tern Bridge to Bridgenorth for three Shillings more: so that you see in this article alone there is one pound one shilling saved, besides the work that his horses have done whilst at home four days. Surely, from this convenience, the farmer can afford to part with his cheese much cheaper, and the poor have provision at a more moderate price.

The next manufacture that seems to claim our attention, in regard to ease the heavy burthen of land-carriage, is the potteries at Newcastle and Burslem; great quantities of which are sent weekly from thence to Bridgenorth, thro' Eccleshall and Newport: there are constantly two, and sometimes three waggons go every week to Bridgenorth, and usually carry about eight tons of pot-ware, to be conveyed to Bristol by water; and their loading back usually consists of all sorts of grocery, foreign iron, and white clay for Burslem, to supply the inland towns of Newcastle, Stafford, Eccleshall, Newport, and many others, and the countries between: sometimes they bring Worcestershire hops and cyder from thence; the back-carriage of the iron and clay, being heavy goods, may be computed at ten tons *per* week. But as there is a great traffick carried on in the articles of cyder and hops alone, by farmers waggons being hired on purpose to fetch them, I will therefore compute that two thousand tons of hops and cyder come

come yearly to these countries, and far beyond them in Cheshire, the whole of which might be conveyed by this canal, and thereby save seven shillings *per* ton out of every ten shillings now paid for land-carriage.

Large quantities of pot-ware from Burslem are conveyed on horses backs in large crates to Bewdley and Bridgenorth, which might be entirely conveyed this way, computed yearly at a hundred tons, at two shillings and ten pence *per* ton from Burslem to Bewdley, and thence sent to Bristol for exportation.

I should not forget the number of pack-horses, about one hundred and fifty, that go weekly with woollen cloth, and various other kind of merchandize, from Manchester, through Stafford, to Bewdley and Bridgenorth for exportation, computed yearly at three hundred and twelve tons of carriage, which might be conveyed above one half of the way by water; from Manchester to Northwich by land-carriage; and from Northwich by water to Bridgenorth or Bewdley; which would be nigh an hundred miles by water; by which easy carriage the merchants at Bristol would be able to export their merchandize much cheaper, and undersell any other merchants at any foreign market: the manufacturer would also reap his share of a profitable voyage, and, by a quick return from the merchant, would enliven his poor workmen, not only with prompt payment, but with future hopes of employ, by having his market, as it were, at hand.

There is a great trade carried on at Shrewsbury in coarse cloths and flannels, which come out of Wales, and supplies a great part of Staffordshire and Shropshire bordering on this canal, and might then go to Liverpool to be exported, which must go
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along this canal, and may be computed yearly at one thousand tons, passing threescore miles on it.

I cannot omit the great salt trade that is carried on at Northwich, which can now only go to Liverpool by water; when this canal is made, may be conveyed at least one half to Bristol; and the salt made at Nantwich, which is now carried on horse-back, and serves three or four inland counties, and computed at four hundred tons, the whole of which will be conveyed by water to these three inland counties, thirty miles upon an average.

The great trade that Chester now enjoys from Ireland in cloths and linen, that causes so great a fair to be held twice a year; must, without doubt (whenever Chester shall think fit to have a canal to unite with this at, or about Nantwich, which they may easily effect, at any time the gentlemen of Chester please, at a very trifling expence) be conveyed from the fairs at Chester along this canal to Northwich, Nantwich, Eccleshall, Stafford, Newport, Drayton, Salop, Bridgenorth, and various other towns, and the intermediate countries: the tons, that are likely to come along this canal of cloth and linen only, may be computed at two thousand yearly, forty miles upon an average water-carriage on this canal.

The great quantity of Cumberland red-ore that is used at Doddington furnace in Cheshire, is about eleven hundred tons yearly, which comes from Frodsham, over Delamere Forest, in carts, at a very large expence; which ore, if the great furnaces at Ketley, &c. in Shropshire, could have to come by water, the six furnaces there would use twelve thousand tons, or upward, to serve the forges (who now buy Cumberland pig-iron) which would come along this canal sixty miles at least.

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The great quantities of fine hard brick, fit for floors, and blue tile that are sent for to Madeley Park, from various parts of Staffordshire and Shropshire, and are conveyed at an immense expence by land-carriage, and may be computed at two hundred tons of brick and tile, that would be carried to all parts bordering on this canal. Suppose a farmer goes ten miles for a load of tile to Madeley, his waggon, and two persons with it, must be out two days, which will lie him in more than twenty shillings; and that he brings back a ton of tile, as they seldom carry more, on account of the badness of the roads to that place, he might convey the same for one shilling and six-pence tonnage (and one shilling and six-pence freight, if he does not keep a boat of his own) so that he saves at least fifteen shillings, allowing two shillings *per* ton for land-carriage from the water-side to his house: this saving is only in ten miles, which, if he lives twenty miles off, the sum would be doubled; and by being able to carry more tons at a load, he will make a considerable saving in that case, as a boat will bring thirty tons; so that in one day he may lay down brick and tile enough to build his house, and the next day send his boat for a sufficient quantity of lime and other materials, instead of lingering and dragging out a whole summer, and perhaps some part of the winter, in bringing his materials by land-carriage.

I cannot omit mentioning again the vast quantity of corn, and all sorts of grain, from the counties of Stafford, Salop, and Chester, that will be sent to all parts along this canal, to supply home as well as foreign markets; and from these three counties, bordering on, or within six miles of the canal (being great corn countries) we may, at least, suppose fifteen thousand tons will be carried yearly

yearly twenty miles upon this canal, which suppose at one shilling and six-pence tonnage, and one shilling and six-pence freight, which carried in boats, only twenty miles on this navigation, will amount to a very large income.

It is not to be conceived at present the numerous tons of different kinds of merchandize that will come upon this canal; it is morally impossible to state them all; for as many different things as are now made use of by man, so many different and various sorts of merchandize will be carried along this canal.

I will only mention one more very considerable article, which will always be conveyed along this canal, I mean timber for houses, and also for ship-building; as within six miles of this canal, in Staffordshire and Shropshire, they may vie with all the rest of the kingdom (taking the same compass) for the largeness of their oak trees, fit for keels and building large ships; these may be conveyed at least sixty miles upon this canal. We should give some sort of computation what number of tons are now upon a medium yearly felled within six miles of each side the canal, and in sixty miles lengthways, which, if conveyed either to Liverpool or Bristol, may be supposed to pass, upon an average, thirty miles (at a mean from the center) we will suppose ten thousand tons and upwards, of house and ship timber, that will pass thirty miles upon this navigation; which, at one shilling and six-pence *per* ton, will amount to two thousand, two hundred, and fifty-three pounds; which will be an income that will accrue only between Bristol and Liverpool, but would be much greater if carried down to Hull.

I must here observe, that all the trade, manufactures, and merchandize, I have hitherto mentioned,

tioned, are subsisting between Liverpool and Bristol only; I have not yet touched upon, or took notice of, any trade from Stafford down by Burton to Wilden Ferry, which is about forty-three miles. It is a very great country for timber, but no very considerable manufacture any where within six miles of the canal; except I am to mention the large quantity of fine Staffordshire ale that is brewed at Burton, and sent to all parts, carrying on a large trade in that commodity alone. A great quantity of malt would, no doubt, be carried along this canal, thirty or forty miles perhaps from the inland parts; but I greatly fear the farmers would be so fond of carrying their malt in their own boats to Burton, that being pleased with the produce of their lands being liquidated (into that fine amber colour that always appears in Burton ale) would be apt to stay and consume the profits of his voyage in that bewitching liquor; so whether I can rank it among the advantages to these counties, I cannot yet determine: however, from the number of tons of malt that will be conveyed along the canal on this account, at least twenty miles upon a mean, will turn out to increase the income of the canal. In case that Birmingham and Wolverhampton, Litchfield and Tamworth, should ever have cuts made to communicate with this canal, the chief of the tonnage upon this part would accrue from the various manufactured goods, which they send abroad to be shipped at Hull. Birmingham might have a canal made to go by Litchfield, and fall in with this at King's Bromley Common; which would be about twenty-four miles. Wolverhampton might have a cut, either down by the Penk river, to fall in at the junction of the Penk and Sow, or by Hedgeford pool, down that valley, to fall in by a
forge

forge about Rudgeley ; but which of these two is the most feasible, I cannot determine: the first being about sixteen miles, and the falls very great; the latter about eighteen miles, and the falls by the Penk much less. The trade and manufactures from those places might then be conveyed along this canal to Burton and Wilden, and thence along the river Trent to Hull: but as these manufactured goods are what are called light goods (in comparison to pig-iron and bars that are worked up at the furnaces and forges) and the quality much exceeding the quantity, I imagine will not turn out so advantageous in the revenue from the tonnage, as heavier commodities do; tho' they take the same quantity of water to go through the locks, and consequently ought to pay in proportion, equal to the diminishing the water in the locks, but that I am afraid will never be the case. As their goods are chiefly polished and wrought iron, they may think the damp that arises from fresh water may greatly injure their sale of them by creating rust, and soiling the polished steel: salt water has not that effect in so great a degree; though I believe they would sooner chuse land-carriage for such goods, on this account, than water-carriage. I cannot here number any part of this trade upon this canal, as it may perhaps never happen that they may have such a cut as I have here mentioned; and when they have, the weight, or income, from tonnage will be but trifling, as they can only go about thirty miles upon it before they get to the Trent at Wilden; and they will send no other goods along it but what are for exportation, and, as I said before, will turn out little to the income of the canal, being great in quality, but not in quantity; nor will it be a constant trade, only once or twice a year, when the merchants ships are ready for their

their voyage at Hull, as a manufacturer will send the produce of a whole year's work at once ; nay, perhaps, in so little a compass as a small arms chest, which may contain in nice polished ware six or seven thousand pounds worth, and perhaps would not pay to the tonnage of the canal above six shillings for the thirty miles passing upon it, as the goods at the utmost may not weigh more than four tons.

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I must here take notice, how easy the canal between Tern Bridge and Batchacre Grange to Bridgeford will be compleated, as no country can be more properly adapted for navigation, being so well supplied with water; and a little below Batchacre Grange there is eight miles, and only eleven feet fall, so that there will be eight miles without a lock. As I have mentioned some few words about the size of the boats necessary for this canal, I must give some description of the size of the locks, the quantity of water they receive and discharge, and then shew the quantity of water in the reservoirs, and where those reservoirs are to be made, and how many boats that quantity of water will suffer to go thro' each lock in a day. The canal is proposed to be nine yards broad at the surface of the water, six yards broad at bottom, and five feet deep in water; the sides will be about an angle of forty-five degrees. The boats are to be fifty feet long, and twelve feet broad; and will carry thirty tons, and draw three feet water loaded; with one mast to lower down upon deck, a mainsail, foresail, and jib, and a spare square sail to hoist up before the wind; decked from stem to stern, or as occasion may require: one horse will draw these vessels at the rate of five or six miles an hour; and they will bear the tide's way either to Bristol, Liverpool, or Hull, which saves the trouble of re-shipping.

The locks are to be ten feet high, sixty feet long, and thirteen feet broad; the surface of water running in each time the lock is opened will be the height of the lock, which will be ten feet deep; so that the waste of water amounts at the locks to 288.8 cubic yards, and 200 tons of water, the keel excepted.

Now we are to see how many times that quantity is contained in the reservoirs; and the summit is the first place to be considered, which is in the valley below Offley Park. There is now a large reservoir of water at Offley Park Mills, which may be made twelve acres surface, and ten feet deep, and will contain 193580.6 cubic yards. There is also a large sheet of water called Cockmere, thirty-five acres, which may be pounded up ten feet higher, and make a larger sheet, both which would amply supply the west course, as at Batchacre Grange you have a reservoir of eighty acres of water, which, at five deep, contains 645074 cubic yards, on the sides of which the intended canal is to go, which, without further supply, would be sufficient for the locks as far as Severn, and suffer a vessel to pass through the locks fifty-six times each day; numbers of brooks and rivers may be pounded up any where, the whole way down to Tern Bridge on the Severn; there is no country so well supplied with water for frequent passage as this between Tern Bridge and Bridgeford. We will now shew how the east course may be supplied, *viz.* from the summit below Offley Park to Bridgeford. Opposite almost to Offley Park is Cockmere, a large water of thirty-five acres, which is now higher than the summit of the canal, and may be pounded up to any height, a yard or two, without any great damage, as the banks on each side are very high, and the valley above very quick in the descent and narrow; so that the expence of having a surface of water of thirty-five acres and ten feet deep, which would contain 564610.2. cubic yards of water, and fill the locks 1950 times, would be very small; many places, all the way down to Bridgeford, might be made for very large reservoirs, which would supply

ply the locks down by the Trent to Wilden Ferry, at no very great charge or trouble. We will next consider, what quantity of water we shall have for the supply of the north-west course of the canal, between the summit at Madeley Park and Winford Bridge; and therefore observe, that a large sheet of water of forty acres, and five feet deep at a mean, which will contain $322537 \frac{1}{2}$ cubic yards of water, may be made above the summit in Madeley Park, at Madeley manor house, which will supply the northwest course, and suffer one thousand, one hundred, and nineteen boats to pass each forty days; as the current coming in, taking the summer through, will be able in that time to fill the same again: the head of this rivulet here would be sufficient for such supply at any time, and suffer about twenty-eight boats to pass each day. The rivulet, which rises in the Can Bogs, in Madeley Park, by making a dam at Charlton, would be easily made to supply the south-east course to Bridgeford. I must here observe, that the reservoir at Madeley Park will be full as lavish of its waters, and will be able to supply as quick a passage, as that from Offley Park summit to Tern Bridge, or Bridgeford.

The great matter is to have water at the head, or summit of your canal, sufficient for a quick passage; as if that is wanting, your navigation will soon stop and become useless.

Now I have made mention of the canal at Tern, I will make a few remarks upon the navigation of that part of the river Severn from Tern Bridge down to Redstone Ferry, which is about thirty-three miles; and as the difficulty of the shallows, or fords, attending that navigation, are made a great deal worse than they really are, by reports maliciously spread about by evil-minded persons,

it will therefore be necessary, first, to premise what they are in reality, and then to propose an easy method to obviate and remove such difficulties, by deepening the shallow fords at a small expence. There is no river that has such a length of navigation as the Severn; you may navigate a vessel of fifty tons, and not a lock the whole way, two hundred miles up to Welch Pool, except in an excessive drought, which does not happen every year, and, when it does, never lasts at the longest above a month or two; but, upon a small quantity of rain falling, will give water sufficient. There are some few fords, or shallows, between Tern Bridge and Salop, but may be very easily remedied. Between Tern Bridge and Bridgenorth, which is fourteen miles, there are in a very dry summer several shallows, that go by various names, but at any of which a well-constructed vessel, carrying thirty tons, is seldom or never impeded, except at the three following, *viz.* the Lake, the Worps, and the Lydes: they lie all within the compass of a mile, and when the vessels come there, they take out two tons, or thereabouts, to lighten them, and put it into smaller boats, and reship the same again in about a mile, without any additional expence to the person who sends the goods: these fords are partly opposite to Madeley Wood; they are about half an hour unshipping the goods, and the same time in reshipping. Between Bridgnorth and Bewdley are also fords, or shallows, but they impede vessels of that burthen in a very trifling degree, except two shallows nigh to Bewdley. Below Bewdley to Redstone Ferry are two more shallows, as bad as any of the above between Tern Bridge and Bridgnorth. The reader must be informed, that the lowest water, that ever happens in the driest summer, is

never less than eighteen inches, which is sufficient to carry vessels of sixteen or seventeen tons burthen at any time.

The river Severn is a free navigation, and no tonnage upon it, and the number of persons navigating upon it live at various places, and are not connected in a body sufficient to agree to remove these shallows, or to apply to parliament for an incorporation for such a purpose; and as the old phrase is, What's every body's business is nobody's, therefore the reader must not be surprized, why these shallows have not been remedied hitherto; nor let him be the more astonished when he is informed, that every and each of these shallows may be remedied, and deepened so as to admit vessels of fifty tons burthen in the driest summers, for the trifling sum of 40 l. each; but, as I said before, What's every body's business is nobody's, so the thing has hitherto been neglected: I would therefore propose, that the proprietors of the Tern Bridge navigation here intended, should have a power vested in them to lay out any sum, not exceeding 1000 l. upon the river Severn, from Shrewsbury to Worcester, in order for the making the navigation of the Severn more commodious, by deepening, scouring, and widening the said river or the banks thereof, or by any other method or contrivance, making and rendering the said navigation more complete and perfect. As also a power should be given by act of parliament, for the towing, hauling, and drawing of vessels, and other boats, by horses as well as men on both sides of the river Severn. If the above requisites should ever be obtained, the Severn would then be called the most compleat navigation in all the kingdom.

Though in the former part of this treatise I have chalked out a method, whereby this intended

scheme may be executed; and have proposed the same to be done by a company of proprietors, yet I cannot help thinking, and strongly recommending, that the government should undertake a thing of such immense and material consequence to this nation, as the joining the three great ports of Bristol, Liverpool, and Hull, together, by a navigable canal, as it ought to be executed in a noble manner, and not trusted to the interested, narrow-minded notions of the upstarts of every little trading town, whose sole view will be their own good at the cost of others: the design is great, and it were to be wished the execution was so, that such a canal may be made of a size, width, and depth, as will admit, at all times, such vessels as will bear navigating through the tide's way in the Channel; and all things attending the execution of this design should be of a piece one with another. It would be proper if the government were to stay the petitions of private people, and take a summer, or more, to consider and find out which is the most proper part of the country to carry these communications through, not regarding in the least any populous trading town; but that they should find out that course, which would afford at the summits the most ample supply of water in a dry summer, as this is the chief article upon which the good or evil of such navigation depends; for as there must naturally be a high summit of land between each junction from whence the water runs both ways, which, unless there is an ample supply of water for the filling of the two upper locks a number of times each day, in order to admit the passage of as many boats, it is in vain to propose the navigation that way; for every time a boat passes a summit lock, there will be required a supply of five hundred and seven-

ty-six cubic yards of water; so as many times each day as the current will be able to supply that demand, so many vessels may have water to pass. It should therefore upon this account be wished, that this most material point may be well considered; for if the water in these main trunks should fail, there is an end of the navigation: the proper course for such supply ought first to be found out, not regarding, as I said before, any particular populous town, or manufacture whatsoever, as it would be the most proper for the trading and manufacturing places to have canals cut into the main trunk from each place or town. Many inconsiderate people will object, and say, that it is of no use, unless it comes by the trading towns. It should readily be granted, that it would be convenient that the main trunks should go by those places, provided such towns happened to be situated in a country that would afford the most ample supply of water; but for this small trifling convenience to one town, surely the main communications between the three ports are not to be destroyed! Let all trading towns have canals cut into the main trunks; for if the main trunks want water, the whole of the navigation is impeded. Some inconsiderate people may make use of an argument, and ask, Whether the Thames navigation coming close to London does it any harm? They will be pleased to consider, that London was situated for the conveniency of the navigation, and was built after it; and that there is a great difference between a town built upon a navigable river, and a navigable canal being brought to a town: the former having suited all their employments and trades accordingly at their first coming; when perhaps in the latter the whole face of the landed trade is to be changed, and the number of families,

lies, that have hitherto supported themselves by land-carriage, would be now totally deprived of bread, and many other trades undergo an intire transmutation. One may therefore repeat the wish, that the government would undertake the execution of the main trunks, and carry them through such a part of the country as will afford the most ample supply of water at the summits; and that the private canals, from each trading town or place, may be executed in the manner most interesting and satisfactory to the inhabitants, under their own costs, charges, and directions.

I have also in the former part of this treatise described the canal as proper to be carried down to Wilden in Derbyshire; yet upon mature consideration, and having since informed myself of many difficulties that may arise, on account of floods from the river Dove, which would greatly impede the execution of the navigation, by being obliged to raise a high bank along the meadows, for almost three miles, with arches every hundred yards, to suffer the floods from the river Dove to pass thro'; I am therefore, and upon many other accounts which I shall mention hereafter, inclined to think, that the canal ought to enter the Trent at Burton, as there is a navigation already made by authority of parliament, and which is reported to be no very bad one; it is granted to the earl of Uxbridge, and is now enjoyed by his lessees; the tonnage is very reasonable, and large vessels may navigate upon it. From Burton to Wilden is near sixteen miles, and the water in the river Trent is deeper from Burton to Wilden than it is below Wilden to Gainsborough, as there are more shallows in proportion below Wilden Ferry to Gainsborough, than between Burton and Wilden. Between the latter, vessels, from thirty to forty tons, may na-
vigate

vigate, which are seldom or never impeded. From Burton to Gainsborough is about one hundred and ten miles, and boats are frequently known to perform that voyage, and back to Burton, in eight days. The tonnage upon the Burton navigation is very moderate, nor can it be in any shape considered as a monopoly, as the tonnage upon that river, from Burton to Wilden, is no more than three pence. Upon these, and several other arguments, I am induced to think, that it would save a considerable sum of money by having the canal to enter at Burton; I dare say, at least, 10000 l. to the proprietors; but, having chalked out the other, I must leave it to the consideration of those concerned: but in case the canal should be made as far as Wilden, I think, at least, that the proprietors, who have been at the expence of the Burton navigation, should have as many shares in it as their present debt amounts to, or in some measure that part of the tolls arising from the same length of the canal, as is opposite to their navigation, should be appropriated for the payment of the principal, or debt, lodged upon the old navigation; but I must still continue to think, that it would be no great detriment to the publick was the canal to terminate at Burton; and for my own part would rather wish it, provided the same was to be put under the same directions, regulations, and orders, as, by authority of act of parliament, the present canal is intended to be; and that the present lessees, when under such restrictions, might be concerned as proprietors in the same.

1st. An account of the different manufactories that lie bordering on the intended canal between Tern Bridge, on the river Severn, in the county of Salop, or within reach of it, by Batchacre Grange, and Bridgeford, in the county of Stafford, from thence

thence to Winsford Bridge, in the county of Chester; shewing, at one view, the various sorts of manufactures and merchandize that will be conveyed along this canal.

2dly. The number of tons of goods,

3dly. The present price of the same by land carriage.

4thly. The price of water carriage for the same goods on this canal.

5thly. The savings and difference between land and water-carriage.

6thly. The income that will accrue to the proprietors, at one shilling and six-pence *per* ton for each ten miles, computed within a circle of twenty only: as the canal will be sixty-four miles long, the sums upon each article, arising from tonnage, ought to be reckoned, in fact, as only a third part of the income to the proprietors.

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MANUFACTURES and MERCHANDIZES,

Bordering on, or lying near the intended Canal,

Between the Rivers Severn, Mersey, and the Trent.

	Weekly Account of Carriage of Tons, to and from each Manufactory, where Information could be had.	The Computation of the yearly Carriage of Tons, to and from each Manufactory.
Six very large furnace works Two omitted.	800	
Twelve large iron forges Two omitted.	215	
Deduct 9360 tons out of the year's account as home carriage for pit-coal		{ 52780 9360
		43420
Cumberland oar would always be made use of by the Salop furnaces if they could have it come by water. Dodding-ton furnace uses 1100	— — —	1100
The Salop furnaces would use at least 9000 tons of sea oar: nat would come fifty miles upon the canal	— — —	— — —
Coals from Ketley to Salop and its neighbourhood	— — —	15300
Lord Gower's, and other Works at Linfell, produce yearly 35000 tons, 10000 of which would go upon this canal	— — —	10000
Lime-works at ditto for manure of land and building produce yearly 35000 tons, 10000 of which would go upon this canal	— — —	10000
Steeraway lime-works may produce yearly 20000 tons, 5000 of which would go upon this canal	— — —	5000
Coals carried from Linfell to burn lime-stone at Bishop's Offley would be many tons, and the lime from thence to various parts North and East	— — —	— — —
Madeley and the coal-works in Cheshire produce yearly 30000 tons, of which the north parts of Staffordshire consume 12000, and the neighbourhood to Winsford 15000 tons, 25000 of which would be conveyed by this canal	— — —	25000
The cheese that yearly goes to Bridgnorth fairs from these parts of Staffordshire, Shropshire, and Cheshire, suppose upon an average 50 l. per annum, sends one ton of cheese for ten or twenty miles, it must be allowed that 1000 tons go from these countries which might be conveyed by water	— — —	1000
There are three pot-waggons go from Newcastle and Burslem, weekly, through Ecclethall and Newport to Bridgnorth, and carry about eight tons of pot-ware every week, at 3 l. per ton	— — —	416
The same waggons load back with ten tons of close goods, consisting of white clay, grocery, and iron, at the same price, delivered in their road to Newcastle	— — —	520
Great quantities of cyder and hops are brought from Bridgnorth by farmers waggons, about 2000 tons yearly, to these countries, which would be all conveyed on this canal	— — —	2000
Large quantities of pot-ware are conveyed on horses backs from Burslem and Newcastle to Bridgnorth and Bewdley for exportation, about one hundred tons yearly, at 2 l. 10 s. per ton	— — —	100
Two broad-wheel waggons (exclusive of 150 pack-horses) go from Manchester through Stafford weekly, and may be computed to carry 312 tons of cloth and Manchester wares, at 3 l. 10 s. per ton	— — —	312
Coarse cloths and flannels that come from Shrewsbury (from Wales) supply a great part of Staffordshire, Shropshire, and Cheshire, and may be computed at one thousand tons yearly, would all come forty miles on this canal	— — —	1000
The great salt trade that is carried on at Northwich may be computed to send 600 tons along this canal, together with Nantwich, 400, chiefly carried now on horses backs, at 10 s. per ton on a medium	— — —	1000
The great cloth and other trade that Chester enjoys from Ireland, and is sold at the two fairs, amounts yearly to a very great number of tons, 2000 of which might come from Chester to Nantwich, and be conveyed to all the inland towns of the three counties of Staffordshire, Shropshire and Cheshire, and, on a medium, come twenty miles on this canal	— — —	2000
The great quantities of fine blue floor bricks and blue tiles, that are made at Madeley Heath, by Madeley Park, and supply Staffordshire, Shropshire, and Cheshire, may be computed at 200 tons, that will come along this canal yearly, ten miles on a medium	— — —	200
The vast quantities of corn and grain of all kinds that now go from these counties to Woore or Sandbach, in order for exportation at Liverpool, are immense; we will only reckon 3000 tons delivered in Cheshire for exportation only, that might go by water all the way	— — —	3000
The parts within ten miles of this canal grow immense quantities of corn, which supply the markets of Stafford, Ecclethall, Newport, Wellington, Skifnall, Drayton, Whitchurch, Nantwich, and Newcastle, and the consumption between the towns from these home-markets, compute 1040 tons each yearly	— — —	9360
The great quantities of large fine timber that grow within six miles on both sides the intended canal, taking sixty miles lengthways, may vie with ten times the space any where else, the number of tons, <i>communibus annis</i> , that are now felled for ship-building and keels, and all sorts for house use, may be computed at 10000 tons, ship timber, is sent to Liverpool	— — —	10000
Totals	—	140728
There will be very large quantities of malt from these countries go to Burton, where a great trade is carried on in ale for exportation, so that the malt would go on this canal twenty miles, at least, and may be computed at 1000 tons yearly	— — —	1000
The same boats would load back with London goods, iron, wine, and grocery, and may be computed at 600 tons, ten miles on a medium	— — —	600
There is one forge at Rudgley, which might be computed in the carriage, to and from this canal, at 600 tons	— — —	600
Goods from Hampton, &c. (if ever they should unite with this along the Penk) would pay considerably towards the income of the canal in the tonnage of wares for exportation, once or twice a year, when the ships are ready to sail at Hull; their goods being light, would pay but little, the quality being their trade and not the quantity; we may compute yearly twenty miles along this canal 8000 tons	— — —	8000
The tonnage of coals and fundries on this part of the canal	— — —	— — —
Totals	—	10200

The accounts here given are taken from as good information as could be had; it is as difficult to get at the minute produce and repairs. The value of the trade, and the land-carriage is here produced, to shew the consequence and public utility this canal v the quantity of merchandize here mentioned will pass along the greatest part of this canal, from various manufactures not here let not the reader be surprized at this account, when he considers, that these goods, &c. which now go by a thousand different r prietors of this navigation, when he is informed, that, on one of the canals in Holland, no less an income than 250000l. per a

putation of the Carriage of to and from ananufactory.	The present Price of the same by Land Carriage, within a Circle of twenty Miles per Ton 15s. upon an Average, except where otherwise specified.	The Price of the same by Water on the intended Canal, at 1s. 6d. per Ton for each ten Miles on the Canal.	The Price of Freight of the same, at 1s. 6d. per Ton for each ten Miles, in case they have no Boats of their own.	Freight and Tonnage added together.	The Savings and Difference in the Carriage to each Manufacture in this County between Land and Water Carriage.	The Income that may reasonably be supposed to accrue to the Proprietors of this Navigation.	The supposed Sums of Money turned thro' their Hands yearly, where the Information could be had.
	l. s. d.	l. s. d.	l. s. d.	l. s. d.	l. s. d.	l. s. d.	l. s. d.
2780 9360	3958s 0 0 7020 0 0	— — —	— — —	— — —	— — —	For ten miles only in the iron trade, two parts out of four,	624000 0 0
3420	3256s 0 0 Reckon 6s. per ton from Winsford to Doddington,	Ten miles, 3256 10 0 Fifteen miles from Winsford to Doddington, 82 10 0	3256 10 0	6513 0 0	26052 0 0	1628 5 0	
1100	330 0 0		165 0 0	165 0 0	165 0 0	82 10 0	
— — —	At 5s. per ton, 3825 0 0	1147 10 0	2295 0 0	2295 0 0	1530 0 0	3375 0 0	
5300						1147 10 0	
0000	7500 0 0	750 0 0	7500 0 0	1500 0 0	6000 0 0	750 0 0	
0000	7500 0 0	750 0 0	750 0 0	1500 0 0	6000 0 0	750 0 0	
5000	3750 0 0	375 0 0	375 0 0	750 0 0	3000 0 0	375 0 0	
— — —	— — —	— — —	— — —	— — —	— — —	12 9 0	
5000	At 10s. per ton, 12500 0 0 A team and two men two days, at 20s. at least,	1875 0 0	1875 0 0	3750 0 0	8750 0 0	1875 0 0	The boats on Severn in part, and for 20 miles on this canal,
1000	1000 0 0	150 0 0	225 0 0	375 0 0	625 0 0	150 0 0	
416	At 3l per ton, 1248 0 0	Forty miles on this canal, 124 16 0	Freight on Severn 31l. 4s. 40 miles on this canal, 156 0 0	Carriage from Newcastle to this canal 62l. 8s. 343 4 0	904 16 0	124 16 0	
520	1560 0 0	Twenty miles back on a medium on this canal, 78 0 0	Freight on Severn up stream at 2s. per ton 52l. 20 miles on this canal, 130 0 0	208 0 0	1352 0 0	78 0 0	
2000	At 15s. per ton on a medium, 1500 0 0	Twenty miles on this canal, 300 0 0	Freight on Sev. up stre. at 2s. per ton 20cl. 20 miles on a medium, 500 0 0	800 0 0	700 0 0	300 0 0	
100	250 0 0	Forty miles on this canal, 30 0 0	Freight on Sev. 7l. 10s. 40 miles on this canal, 37 10 0	75 0 0	175 0 0	30 0 0	
312	1092 0 0	Sixty miles on this canal, 140 8 0	Car. from Manchester to Winsford, 234 l. 374 8 0	514 16 0	577 4 0	140 8 0	
1000	750 0 0	Forty miles on this canal, 300 0 0	Freight down Severn 50l. 350 0 0	650 0 0	100 0 0	300 0 0	
1000	At 10s. per ton, 500 0 0	Thirty miles on this canal, 225 0 0	225 0 0	450 0 0	50 0 0	225 0 0	
2000	At 30s. per ton on a medium, 3000 0 0	Twenty miles on this canal at least, 300 0 0	Car. at 10s. per ton from Chester to Nantw. 1000l. 20 miles on this canal, 1300 0 0	1600 0 0	1400 0 0	300 0 0	
200	100 0 0	0 15 0	15 0 0	30 0 0	70 0 0	15 0 0	
3000	At 15s. per ton to Woore, 2250 0 0	Thirty miles on this canal on a medium, 675 0 0	675 0 0	1350 0 0	1650 0 0	675 0 0	
9360	At 10s. per ton, being home carriage, 4680 0 0	Ten miles on this canal, 702 0 0	702 0 0	1404 0 0	3276 0 0	702 0 0	
10000	Home carriage and land carriage to Northw. upon a medium, 15s. per ton, 7500 0 0	Thirty miles upon this canal on a medium, 2250 0 0	2250 0 0	4500 0 0	3000 0 0	2250 0 0	
140728	93400 0 0	13526 14 0	15176 8 0	28773 0 0	65377 0 0	15285 18 0	
1000	500 0 0	20 miles on this canal on a medium, 150 0 0	150 0 0	300 0 0	200 0 0	150 0 0	
600	At 5s. per ton, 150 0 0	45 0 0	45 0 0	90 0 0	60 0 0	45 0 0	
600	At 15s. per ton upon an average, 450 0 0	45 0 0	45 0 0	90 0 0	360 0 0	Take two parts out of four on this canal, 22 10 0	
8000	At 10s. per ton, 4000 0 0	1200 0 0	1200 0 0	2400 0 0	1600 0 0	1200 0 0	
10200	5100 0 0	1440 0 0	1440 0 0	2888 0 0	2220 0 0	2617 10 0	

te produce each year of every work, as it is to know the clear income of every man's estate when it is lett on rack rents subject to y this canal will be of, sufficient for the consideration of the legislature as a public advantage; though it is imagined, that double es not here denominated, these being only local and certain: the Bristol, Liverpool and Hull trade is not even mentioned. And d different roads and conveyances, will all center in one passage; nor let him wonder at the immense profit accruing to the pro- 50000l. per annum accrues to the proprietors there from forty miles inland navigation.

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I have now gone through many of the various trades, and manufactures, bordering on this intended canal; the reader must observe, that the land-carriage is here reckoned at no more than half price in many places; which I did on purpose, that no person might think that the balance of the land and water-carriage was exaggerated, or over-reckoned: and as the manufactories and trades here mentioned are those that are local only; therefore it may very reasonably be supposed, that the travelling stage boats will be both numerous, and carry immense quantities of various merchandizes, between Bristol and Liverpool.—The merchandize, that will come from London to these parts, will yield no inconsiderable income alone, and will be a great means of the increase of the coasting trade, as all the goods that used to be sent by land carriers from London to these countries will now come by shipping to the sea-ports, and then be dispersed far and wide by means of these canals, and will be the greatest benefit to the coasting trade imaginable, besides the various kinds of utensils that will be conveyed from distant inland counties, perhaps forty miles by land, and as much by water; so that all countries will be eased in their carriage in some shape or other. The reader upon these circumstances must permit us to say, that the income of 15285l. 18s. which I have computed, as accruing to the proprietors of the navigation, is, in fact, only, a third of the real profits from the tonnage of goods, but as it serves the purpose of proving that the income of this canal will pay the expence of making it in a few years after it is compleated, and of shewing to the parliament that the taking the same into consideration is worthy the notice of the legislature

lature to pass an act for that purpose as a public good, and not only local, but a national benefit.

I will now proceed to shew, what sum of money the proprietors will be enabled to borrow, paying 5*l. per cent.* for the same, from the time that the sums are wanted, for the execution of the design. The income (being only esteemed as a third part of the really expected profits) amounts to the sum of 15285*l. 18s.* which will enable them to borrow the sum of 300000*l.* leaving the 285*l. 18s.* for repair of locks and other accidents, and salaries to officers and servants: but, if the income should in a few years amount to 45857*l. 14s.* it will enable them to borrow the sum of 900000*l.* leaving the 857*l. 14s.* for repairs of locks, and salaries to officers and servants. We will now come to the estimate of the expence of making and compleating the canal; and as I have before only reckoned the income as chiefly accruing between Bristol and Liverpool, and very little on the part of the canal leading to Burton and Wilden Ferry, I will therefore first mention the sum that will be required for the making and compleating the canal from Tern Bridge on the Severn, by Batchacre Grange to Bridgeford, in the county of Stafford, from thence by Madeley Park in the said county, to Winsford Bridge, in the county of Chester, to communicate from thence with the Mersey, by the river Wever.

The sum required will amount to 68000*l.* including all things during the execution of the work, the interest of part of which must be paid out of the fund until profits accrue, which may happen in less than three years, sufficient to pay the whole interest, and replace the deduction out of the principal; and, as the canal may be compleated in four or five years between Bristol and

Liverpool,

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Liverpool, the principal, in six years after, might be paid off, and 22000 l. over the last year, to pay off the interest of the sum in hand, each year decreasing gradually for six years. The account will stand thus :

	l.	s.	d.
The certain income of the canal	15285	18	0
At 5l. <i>per cent.</i> enables them			
to borrow in the whole -	300000	0	0
The expence of making the			
canal from Tern Bridge to Wins-	}	68000	0 0
ford Bridge - - -			

So that if the proprietors only borrow 68000 l. the interest required to pay for that sum will be 3400 l. there remains then 11600 l. to be divided among the proprietors yearly (over and above the 5 l. *per cent.*) as profits accruing from the canal, which, if the law would allow me to term it so, would be an income of upwards of 20 l. *per cent.* to each proprietor, exclusive of the 285 l. 18 s. which is allowed for unforeseen accidents yearly, and salaries to officers and servants. Surely every one will be induced, that has any sense of their own welfare, to lodge their money in this fund, not only for the sake of having lent their assistance for so public a good, but for the satisfaction of receiving 20 l. yearly for each 100 l. so lent, and the principal to be paid off in a few years, or at any time they chuse it, and thereby securing a certain annual large estate for themselves, and their heirs or assigns, for ever; and let each person consider, that, in ten or twelve years, the income may amount to 45000 l. *per annum*, and upwards. How great and immense will be the profits accruing to the proprietors! that will make each man repent that he had not had the foresight and prudence to

to lodge his whole fortune in so glorious an undertaking.

I will now proceed to shew the expence of making and compleating that part of the canal from Bridgeford, in the county of Stafford, by Stafford, Wolesly Bridge, Bishton, in the said county, thence by Burton to Wilden Ferry on the river Trent, in the county of Derby, being one fall from Bridgeford south eastward to Wilden Ferry. The income of that part of this canal (which I must term the eastern branch) is not very considerable, but will chiefly arise from the carriage of corn, and all sorts of grain, towards Wilden Ferry; and the carriage from Wilden back will be somewhat considerable in London goods, brought to Hull by sea, and thence along this cut to the inland towns, east of Stafford, being not many in number, as most of the country about Stafford will be supplied from Bristol, or Liverpool. The distance from Bridgeford to Wilden Ferry is forty-three miles, and the income to the proprietors may every year amount to the sum of 2617 l. 10s. for tonnage of goods passing on the canal. The proprietors will therefore be enabled to borrow, at 5 l. *per cent.* as before mentioned, the sum of 52350 l. and the estimate of the expence of making and compleating the said eastern branch will amount to the sum of 48000 l. including the things necessary; so that if the proprietors borrow the said sum of 52350 l. the interest will amount, at 5 l. *per cent.* to 2400 l. and there will remain the sum of 217 l. 10s. to be divided among the proprietors as the profits of the canal; and, if the law would allow me the appellation, would be more than an income of 5 l. *per cent. per annum.* I must also add, that this income will greatly and immensely increase, whenever Wolverhampton

verhampton and Birmingham shall have cuts into it as before described.

I have now shewn the profits arising and accruing on each part of this canal; and, for the distinction of each part, should chuse to divide them into three districts, reckoning the junction of the Sow above Bridgeford, in the county of Stafford, as the center, where they all unite. The first district from the junction above Bridgeford to Tern Bridge, should be termed the western district, which is thirty miles and a quarter. From Bridgeford aforesaid to Winsford Bridge, the second district, which should be termed the northern district, and is thirty-two miles three quarters. From above Bridgeford aforesaid by Burton to Wilden Ferry, being the third district, should be termed the eastern district, which is forty-three miles. In all one hundred and six miles.

The Estimate of making the Canal from or near Tern Bridge, on the River Severn, in the County of Salop, to the Junction at Bridgeford Bridge, in the County of Stafford; the Distance being thirty-one Miles and a quarter; Rise one hundred and thirty-six Feet nine Inches to the Summit; Fall to Bridgeford Bridge fifty-four Feet eight Inches.

l. s. d.

IN the intended course of this canal, between the upper-end of Tunstall Moors (in the valley below Offley Park) and its junction with a brook near to Cockmere, the distance being a mile and a half, the highest point of land is an elevation of twenty-five feet. To reduce this to a level eighteen yards in breadth (the breadth of the canal, towing paths, and drains) must be removed, at a mean, 198015.84 cubic yards, which, at three pence *per* yard, will amount to

2475 3 11

The canal is proposed to be nine yards broad at the surface of the water, and six yards broad at bottom. These dimensions, in thirty-one miles and a quarter, will produce 687637.5 cubic yards to be removed, which, at three-pence *per* yard, amounts to

8595 9 4

The canal, towing paths, and drains, being eighteen yards in breadth, in thirty-one miles and a quarter (deducting one mile for waste land) there will be one hundred and ninety-nine acres,

Carried over - 11070 13 4

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over -	11070	13	4
one rood, and twenty perches, to be purchased, which, at 15 <i>l.</i> <i>per</i> acre at a mean, will amount to	2985	0	0
Twenty road bridges, at 80 <i>l.</i> each - - - -	1600	0	0
Fifteen water bridges, at 50 <i>l.</i> each - - - -	750	0	0
Making towing-paths, drains, gates, and fencing, at 10 <i>l.</i> <i>per</i> mile	312	10	0
From the highest point of land below Offley Park to the river Severn (the fall being one hundred and thirty-six feet, nine inches) supposing a lock necessary for every fall of ten feet, thirteen locks, at least, will be required, which, at 450 <i>l.</i> <i>per</i> lock, will amount to -	5850	0	0
From the said highest point to Bridgeford Bridge (the falls being fifty-four feet eight inches) in the abovementioned proportion, there must, at least, be five locks, at 450 <i>l.</i> each, will amount to - - - -	2250	0	0
Two funnels between each lock, making thirty-four in number, at 10 <i>l.</i> each - - -	340	0	0
Five <i>per cent.</i> upon the whole for unforeseen accidents	1414	3	0
	26572	6	4

To making the three shallows between Tern Bridge and Redstone Ferry, and the two below on the river Severn, to a proper

F 2

depth

depth of water, fit to carry a ves-	<i>l.</i>	<i>s.</i>	<i>d.</i>
fel of thirty tons, in the driest			
summers, being five in number,			
at 40 l. each - - -	200	0	0

N. B. Eighteen inches water is the lowest ever known to be in the greatest drought (which will always carry a vessel of twelve or fourteen tons) this continues for three or four days till rain comes, so that the alteration and deepening the fords as above will be necessary.

The Estimate of the Expence of making the Canal from the Junction above Bridgeford Bridge, in the County of Stafford, to Winsford Bridge, in the County of Chester; the Distance being thirty-two Miles and three quarters; Rise to the Summit one hundred Feet, three Inches, and a quarter; reduced Fall to Winsford Bridge two hundred and eighty-four Feet one Inch.

IN the intended course of this canal, between the lower end of Charlton Moss, and about half a mile below Snape, the distance being one mile and a half, the highest summit of land is an elevation of twenty-five feet. To reduce this to a level eighteen yards in breadth, the breadth of the canal, towing paths, and drains, must be removed, at a mean, 198015.84 cubic yards, which, at three pence *per* yard, will amount to

l. s. d.

2475 3 11 $\frac{1}{2}$

The canal is proposed to be nine yards broad at the surface of the water, and six at the bottom, and five feet deep. These dimensions, in thirty-two miles and three quarters, will produce 72011.8 cubic yards of earth to be removed, which, at three-pence *per* yard, will cost

9002 13 0

The canal, towing paths, and drains, being eighteen yards in thirty-two miles and three quarters, there will be to be purchased 214 acres ^{parts}₃₆₃, which, at

Carried over - 11477 16 11 $\frac{1}{2}$

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over -	11477	16	11 $\frac{1}{2}$
twenty pounds <i>per</i> acre, will amount to - -	4287	5	2 $\frac{1}{2}$
Twenty-two road-bridges, at eighty pounds each -	1760	0	0
Three water-bridges, at fifty pounds each -	150	0	0
Making towing-paths, back-drains, gates, and fencing, at ten pounds <i>per</i> mile	330	0	0
From the junction above Bridgeford to the summit in Madeley Park, one hundred feet, three inches, and a quarter, supposing a lock for every ten feet necessary, it will require ten locks, at four hundred and fifty pounds each -	4500	0	0
From the above summit to Winsford Bridge, two hundred and eighty-four feet and an inch fall: supposing a lock necessary for every ten feet fall, it will require twenty-eight locks, at four hundred and fifty pounds each	12600	0	0
Two funnels between each lock will be seventy-six, at ten pounds each - - -	760	0	0
Five <i>per cent.</i> upon the whole for unforeseen accidents	1793	5	0
Total	37658	7	2

The Estimate of making the Canal from the Junction of the Sow, above Bridgeford, to Burton, in the County of Stafford, and thence to Wilden Ferry; the Distance being twenty-seven Miles to Burton, and sixteen from thence to Wilden Ferry; Fall to Wilden Ferry two hundred and nine Feet four Inches.

l. s. d.

THE canal is proposed to be nine yards broad at the surface of the water, six yards at bottom, and five feet deep. These dimensions in forty-three miles will produce 945621.6 cubic yards to be removed, which, at three-pence per cubic yard, amounts to

11820 5 4

The canal, towing-paths, and drains, being eighteen yards wide, and forty-three miles long, there will be two hundred and eighty-one acres and two roods, which, at thirty pounds per acre, amounts to

8445 0 0

From the above junction to Wilden is two hundred and nine feet and four inches fall, which, at every ten feet fall, a lock being required, will be twenty-one locks, at four hundred and fifty pounds each, amount to

9450 0 0

Two funnels between each lock are required, which make fifty-two, at ten pounds each

520 0 0

Thirty-six road-bridges, at eighty pounds each

2880 0 0

Carried over - 33115 5 4

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over -	33115	5	4
Seven water-bridges, at fifty pounds each -	350	0	0
Towing-paths, back-drains, and fencing, at ten pounds <i>per</i> mile, forty-three miles -	430	0	0
Five <i>per cent.</i> upon the whole for unforeseen accidents	1677	5	0
	35572	10	4

Additional charges of banking for three miles, and making arches against the floods in Dove Meadows not included, 3000*l.*

In case the canal should go no further than Burton, and enter the Trent there, which I think it ought to do, would only cost

23801 4 7

By carrying the canal only to Burton to enter the Trent there, the money saved to the public would be

11771 5 9

d.

4

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A View of the Expence of making the C A N A L

WESTERN DISTRICT.	Distance in Miles.			The Falls from and between each Place reduced at the Summit.		Cuts per Cubick Yard.			The Sort of Soil the Canal goes through.	Number Acres to be put at 20l. Acre.
	M.	Q.	P.	Feet	In.	l.	s.	d.		
The canal is proposed to be nine yards broad at the top of the water, and six yards broad at bottom, and five feet deep.										
Between the high point of land below Offley Park, where the water runs westward, to Tern Bridge on the Severn	24	—	13	136	9	0	0	3	Light meadow land.	153
Between the said high point of land, where the water runs eastward, to the junction of the Sow	6	1	—	49	—	0	0	3	Ditto.	40
NORTHERN DISTRICT.										
Between the junction of the Sow above Bridgeford, and the summit of land in Madeley Park, where the water runs south-east and north-west	10	2	0	100	3 $\frac{1}{4}$	0	0	3	Ditto.	68
Between the above summit of land and Winsford Bridge on the river Wever to communicate with the Mersey	22	1	0	284	1	0	0	3	Ditto.	145
EASTERN DISTRICT.										
Between the junction of the Sow above Bridgeford to Wilden Ferry on the river Trent	43	—	—	209	4	0	0	3	Ditto.	281

N A L between the SEVERN, TRENT and the MERSEY.

	Number of Acres of Land to be purchased at 20l. per Acre.	TheExpencesof sinking a Mile and a half 25 Feet 18 Yards wide at the Summit.	Expences of Locks, and the Number required, at ten Feet each, 450 l.	Road Bridges for Carriages, &c. at 80 l. each.	Water Bridges to convey the Canal over Water Courses, at 10 l. each.	Number of Funnels between each Lock, and in the Whole.	Towing Paths, the Expence per Mile.	Contingences and unforeseen Accidents, at 5l. per Cent. upon theWhole
	A. R. P.	l. s. d.					l. s. d.	
low	153 1 39	2475 3 11½	13	12	10	26	10 0 0	
	40 0 26	— — —	5	8	4	10	10 0 0	
	68 2 36	2475 3 11½	10	8	1	20	10 0 0	
	145 2 22	— — —	28	14	3	56	10 0 0	
	At 30 l. 281 2 0	— — —	21	36	7	42	10 0 0	

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I have only now left to give a correct description of the country, which the canals go through, together with the land-owners names, and the quantity of land belonging to each; the value of the same *per* acre, and the parish and county in which they lie; the number of miles, and the falls from one place to another, as before described in this treatise, and which I have now done here, by sub-joining a correct survey of the whole canal as taken in the month of February, 1766; and which, I hope, will remain as a lasting memorial of that true love and regard I have (and hope always shall have) for the welfare of my fellow-creatures; for the improvement of the advantages of commerce and society; for the island of Briton, my native soil; and for one of the best of kings that now reigns over it.

Batchacre Grange,
Feb. 13, 1766, Staffordshire.

RICH. WHITWORTH.

DIRECTIONS for placing the TABLES.

T H A T marked [* 51] after	-	-	p. 37.
The largest to front	-	-	60
That on the expence of the canal, to front			72
And that of the land-owners to front the Map at the end.			

37.
60
72

Land Owners between the Severn and Batchacre Grange, near the Summit below Offley Park.		Length of the inclosed Lands.		Common or Waste Land.	
		Ch.	L.	Ch.	L.
1	Corbet, Esq;	16	—	—	60
2	Road at Tern Bridge	18	60	—	—
3	Mr. Corbet	44	4	—	—
4	Lord Bath and Mr. Corbet	28	0	—	—
5	Lord Bath	—	—	—	20
6	Lane to Up'on Forge	12	40	—	—
7	Lord Bath	72	—	—	—
8	Corbet, Esq;	15	—	—	—
9	Rector of Wem	24	—	—	—
10	Mr. Hewit	80	—	—	—
11	Mr. Corbit	—	—	—	30
12	Road to Lee	7	30	—	—
13	Edward Cludd, Esq;	81	20	—	—
14	Corbet, Esq;	—	—	—	34
15	Road to Ifam bridge	3	00	—	—
16	Mr. Clark	47	47	—	—
17	W. Tayleur, Esq;	18	17	—	—
18	Mr. Colley	36	—	—	—
19	W. Tayleur, Esq;	—	—	—	50
20	A road	8	—	—	—
21	Right honourable Earl Gower	26	95	—	—
22	Mr. Barnes	64	—	—	—
23	W. Tayleur, Esq;	169	—	—	—
24	Right honourable Earl Gower	—	—	—	40
25	A road	96	—	—	—
26	Right honourable Earl Gower	—	—	59	80
27	A common	172	20	—	—
28	Rob. Pigott, Esq; and Mr. Bailey	—	—	—	60
29	Road from Edgmond	—	—	—	—
30	Rob. Pigott, Esq; Right hon. Earl of Shrewsbury, Mr. Orme, and Mr. Beetonfon	120	20	—	—
31	Road to Newport	—	—	—	44
32	Rob. Pigott, Esq;	50	6	—	—
33	Road to Chester	—	—	—	32
34	Rob. Pigott, Esq;	54	56	—	—
35	C. Baldwyn, Esq; and the Reverend Mr. Oakley	20	36	—	—
36	Right hon. Lord Kilmurry	98	35	—	—
37	Road to Stafford	—	—	—	40
38	Richard Whitworth, Esq;	79	31	—	—

Land Owners Names between Batchacre Grange and the Junction of the Sow with Chebsey River near Bridgeford Bridge.

1	Richard Whitworth, Esq;	30	75		
2	Richard Whitworth, Esq;	11	90		
3	Richard Whitworth, Esq;	112	89		
4	Right hon. Earl of Breadalbane	3	20		
5	Richard Whitworth, Esq;	11	6		
6	Sir Thomas Broughton, Bart.	6	50		
7	Thomas Boothby, Esq;	51	2		
8	Sir Thomas Broughton, Bart.	39	—		
9	Thomas Boothby, Esq;	6	70		
10	Sir Thomas Broughton, Bart.	9	—		
11	A road	—	—	—	36
12	Sir Thomas Broughton, Bart.	17	90		
13	Right hon. earl of Breadalbane	17	15		
14	Mrs. Vernon	17	5		
15	A lane	—	—	—	34
16	Mr. Ford, Mrs. Nevil, Mr. Buckley, and Mr. Reynolds	66	70		
17	Mr. Bleft, Right hon. Earl of Breadalbane, and Mr. Green	59	54		
N. B. In this distance the road at Platt bridge is included.					
18	Mrs. Hicken, a road included	10	60		
19	Mr. Nichols	11	—		
20	Mrs. Bosville	11	46		
21	Road to Chester	—	—	1	—
22	Poor of Eccleshall	8	20		
23	Lord Bishop of Litchfield and Coventry	54	—		
24	Road to Trentham	—	—	—	30
25	Mrs. Bosville	21	—		
26	Mr. Mofs	24	81		
27	Poor of Eccleshall	21	90		
28	Mr. Noel	8	50		
29	William Wollaston, Esq; a road in Chebsey included	112	71		
30	Thomas Gifford, Esq;	20	—		
31	William Wollaston, Esq;	9	—		
32	William Wollaston, J. Eld, Thomas Gifford, Dives, Esqrs.	75	56		

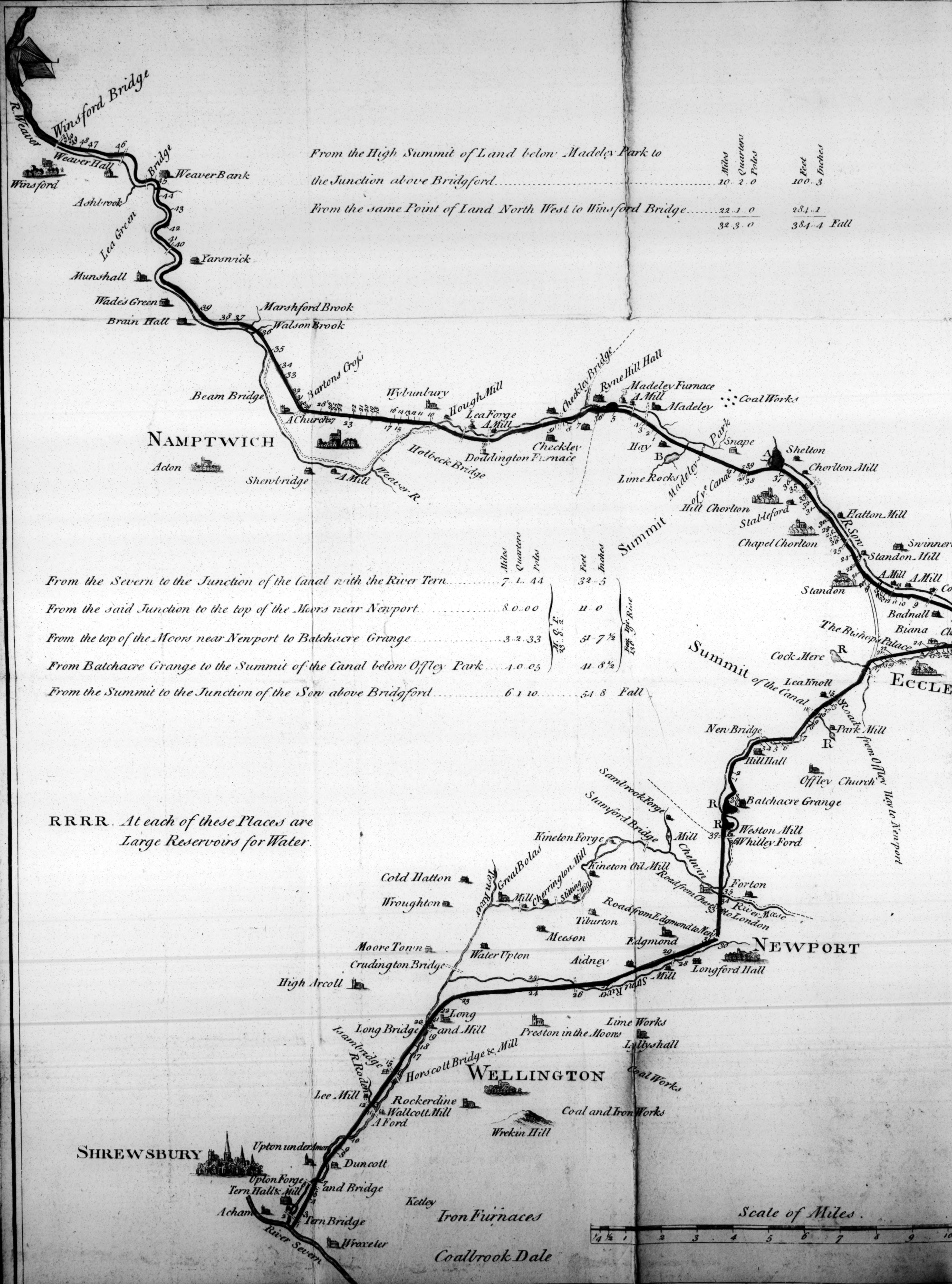
Land Owners from the Junction of the River Sow with Chebsey River, near Bridgeford, to the Summit in Madeley Park.		Length of the inclosed Lands.		Common, or Waste Land.	
		Ch.	L.	Ch.	L.
1	William Wollaston, Esq;	48	50	—	—
2	A road	—	—	1	—
3	Mr. Est.ck	4	—	—	—
4	A road	—	—	—	40
5	Mr. Woldridge, Mr. Estack, &c.	11	40	—	—
6	William Wollaston, Esq;	71	—	—	—
7	A common	—	—	1	—
8	William Wollaston, Esq;	72	40	—	—
9	Sir Thomds Broughton, Bart and a road	108	70	2	15
10	Mr. Spicer, Mr. Swan, Mr. Key, and T. Cotes, Esq;	32	60	—	—
11	Thomas Cotes, Esq;	3	60	—	—
12	Mr. Spicer	3	40	—	—
13	A lane	—	—	—	40
14	Mr. Swan	12	—	—	—
15	Mr. Spicer	5	50	—	—
16	Mr. Swan	1	10	—	—
17	Mr. Spicer	5	60	—	—
18	A road	—	—	—	60
19	Mr. Spicer	24	—	—	—
20	Rev. Mr. Vize	11	50	—	—
21	Mr. Craddock	38	80	—	—
22	Rev. Mr. Vize	34	—	—	—
23	A road	—	—	2	—
24	Rev. Mr. Vize	22	—	—	—
25	A common, or bower's bent	10	10	31	—
26	Rev. Mr. Vize	9	75	—	—
27	Mr. Pearson	7	80	—	—
28	Mr. Broome	14	—	—	—
29	Sir Thomas Broughton, Bart.	14	90	—	—
30	T. Fitzherbert, Esq;	55	90	—	—
31	Sir Thomas Broughton, Bart.	7	—	—	—
32	Mr. Pearson	17	50	—	—
33	Sir Thomas Broughton, Bart.	—	—	2	20
34	A common	20	60	—	—
35	Sir Thomas Broughton, Bart.	—	—	5	80
36	A road	—	—	72	90
37	Sir Thomas Broughton, Bart.	36	50	—	40
38	Charlton Mofs	—	—	—	—
39	A road	—	—	—	—
40	Edward Manwaring, Esq;	4	—	—	—
41	John Crew, Esq;	12	—	—	—

Land Owners from the Summit in Madeley Park, in the County of Stafford, to Winsford Bridge in the County of Chester.

1	John Crew, Esq;	190	60		
2	Mr. Bailey	10	36		
3	John Crew, Esq; and a road	14	—	—	80
4	Mr. Bailey, and a lane	1	54	—	35
5	John Crew, Esq;	71	21		
6	Mr. Woodhouse	24	—		
7	Sir Thomas Egerton, Bart.	78	40		
8	Philip Egerton, Esq; and a lane	45	30	—	50
9	Mr. Mayer, and a road	6	—	3	—
10	Sir Thomas Broughton, Bart. and a road	267	90	1	—
11	Lloyd, Esq;	15	50		
12	Mr. Atbury	7	50		
13	Lloyd, Esq;	10	—		
14	Lloyd, Esq;	11	66		
15	A lane	—	—	—	40
16	Lloyd, Esq;	10	70		
17	A road	—	—	2	40
18	Lloyd, Esq;	26	20		
19	Mr. Wolf	5	30		
20	Mrs. Wolf	12	—		
21	Mr. Bennet	6	10		
22	Mr. Jackson	11	—		
23	A road	—	—	—	40
24	Mr. Bennet	14	40		
25	Mr. Briscoe	3	30		
26	Mr. Bailey	1	71		
27	A road	—	—	1	—
28	Mr. Stubbs	11	60		
29	Mrs. Wetnall	40	—		
30	The poor of Namptwich, and a road	10	—	5	—
31	Ralph Sneyd, Esq; and a lane	19	60	1	10
32	Roger Wilbraham, Esq;	20	80		
33	Mr. Maddox, Mr. Church, and Mr. Yoxall	46	10		
34	Beam Heath	—	—	24	—
35	Ralph Sneyd, Esq;	36	90		
36	Beam Heath	—	—	52	30
37	Mr. Hall and Sir Thomas Broughton, Bart.	48	65		
38	H. Aston, Esq;	27	70		
39	His Grace the Duke of St. Albans and Mr. Brayne	67	30		
40	H. Aston, Esq; and a lane	146	20	—	30
41	Sir Thomas Broughton, bart.	4	30		
42	Mrs. Jervis, and Tho. Cholmondeley, Esq;	24	20		
43	H. Aston, Esq;	29	80		
44	The Executor of the late Lord Bath	31	—		
45	Mr. Salmon	35	—		
46	Sir Peter Leicester, and a lane	111	40	1	—
47	Mr. Hulfe, Mr. Oakes, and George Wilbraham, Esq;	71	30		
48	Mr. Tomlinson and a lane	18	25	—	56
49	Mr. Hand	31	85		
50	Mr. Wood	7	82		
51	The wharf at Winsford Bridge	7	—		

N. B. The figures in the margin refer to the small figures by the sides of the canal in the plan.

A. B. C. In each of these places upon the plan a large reservoir may be made at a small expense.



From the High Summit of Land below Madeley Park to the Junction above Bridgford.....

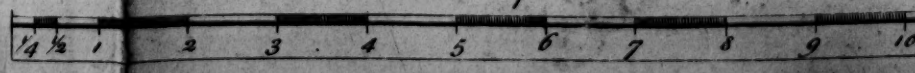
Miles	Quarters	Poles	Feet	Inches
10	2	0	100	3
22	1	0	284	1
32	3	0	384	4

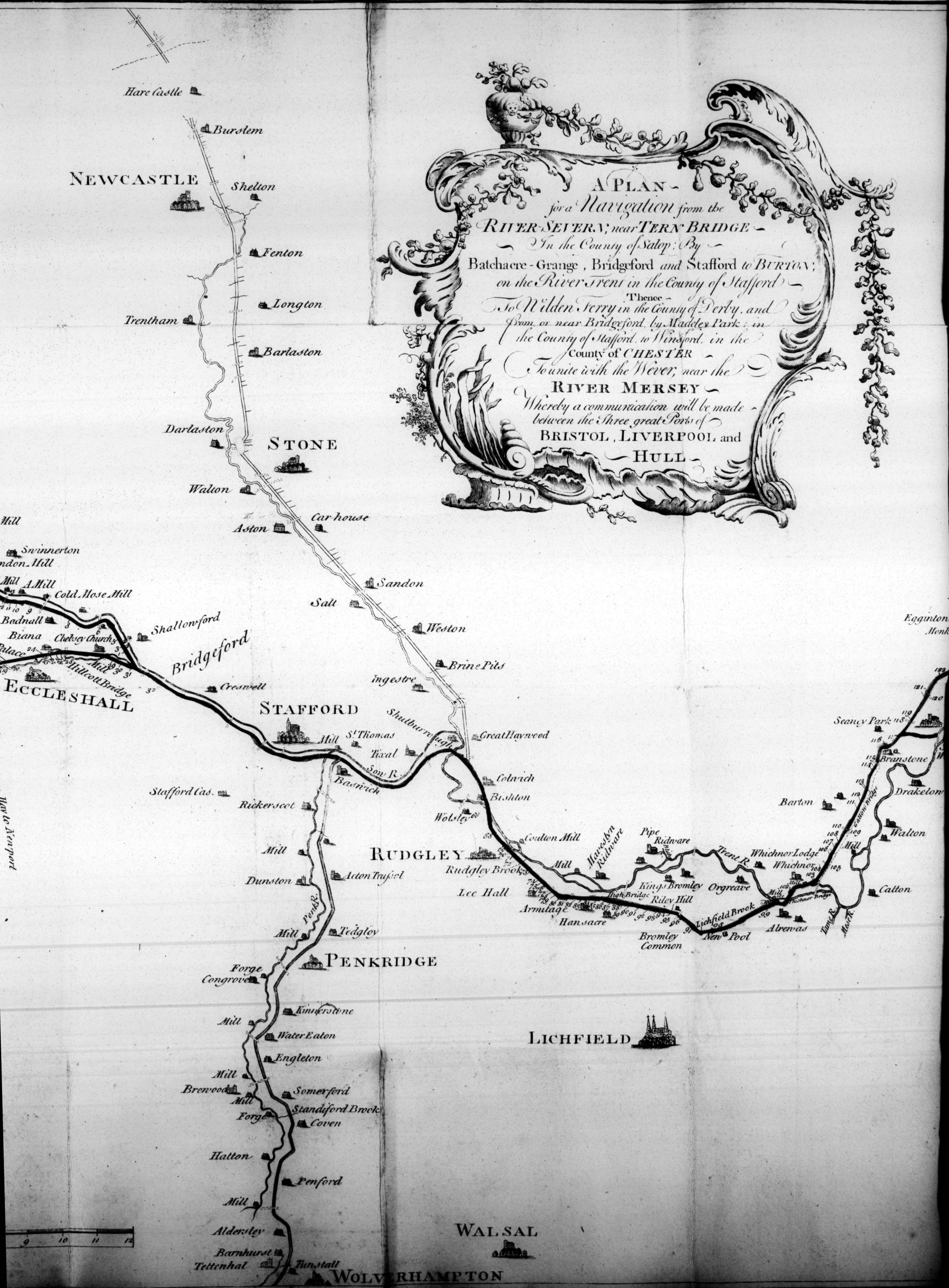
From the same Point of Land North West to Winsford Bridge.....

From the Severn to the Junction of the Canal with the River Tern.....	7	1	44	32	5
From the said Junction to the top of the Moors near Newport.....	8	0	00	11	0
From the top of the Moors near Newport to Batchacre Grange.....	3	2	33	51	7 1/2
From Batchacre Grange to the Summit of the Canal below Offley Park.....	1	0	05	41	8 1/2
From the Summit to the Junction of the Sew above Bridgford.....	6	1	10	54	8

RRRR. At each of these Places are Large Reservoirs for Water.

Scale of Miles.





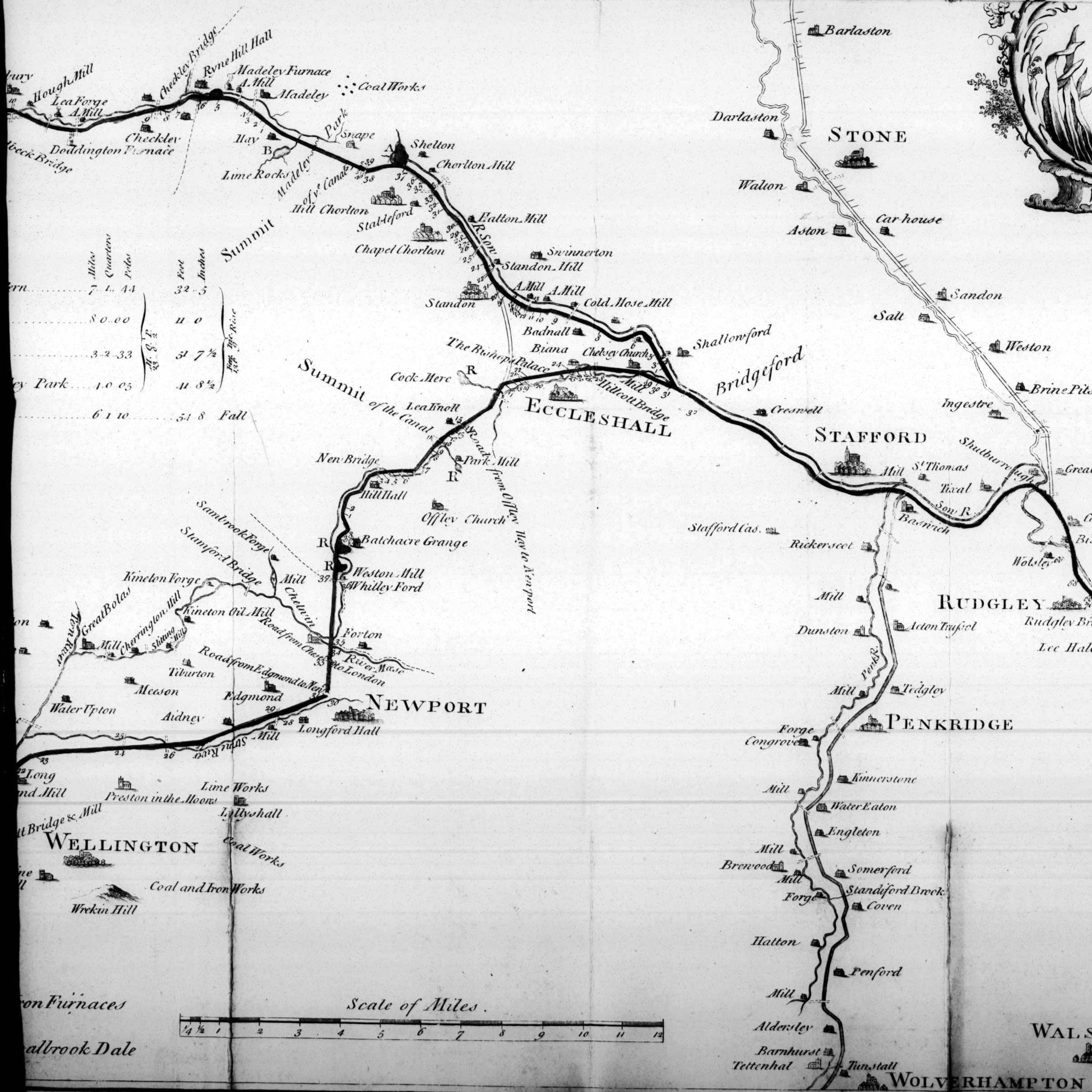
A PLAN
for a Navigation from the
RIVER SEVERN, near **TERN BRIDGE**
In the County of **SALOP**; By
Batchacre-Grange, Bridgeford and Stafford to **BURTON**;
on the **River Trent** in the County of **Stafford**
Thence
To **Wilden Ferry** in the County of **Derby**, and
from or near **Bridgeford**, by **Maddley Park**; in
the County of **Stafford**, to **Windsor**, in the
County of **CHESTER**
To unite with the **Wever**, near the
RIVER MERSEY
Whereby a communication will be made
between the three great Ports of
BRISTOL, **LIVERPOOL**, and
HULL

Summit of Land below Madeley Park to
the Bridgford.

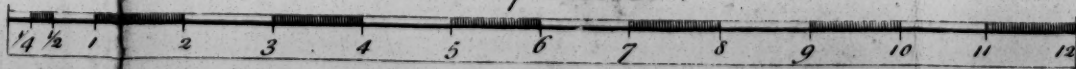
Miles	Quarters	Poles	Feet	Inches
10	2	0	100	3
22	1	0	234	1
32	3	0	384	4

Point of Land North West to Winsford Bridge.

Miles	Quarters	Poles	Feet	Inches
7	1	44	32	5
8	0	00	11	0
3	2	33	31	7 1/2
1	0	05	41	8 1/2
6	1	10	51	8



Scale of Miles.





LICHFIELD



WALSAL



MPTON

